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Bulletin
Georgia State College of Agriculture

Announcement 1916-1917

Register, Officers and Students
Session 1915-1916

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Announcement

OF THE

Georgia State College of Agriculture

Athens, Georgia

For the Session of 1916-1917
With a Register of Officers and Students
For the Session of
1915-1916

Issued in March, as Volume 4, Number 13, Bulletin 103
of Georgia State College of Agriculture.

The University extends a cordial welcome to all educational, agricultural, commercial, manufacturing, financial and industrial bodies, and bodies of like character, having for their object the welfare of the state, to use on special occasions, free of rent, such public buildings of the University as the Chancellor and President of the Agricultural College may approve.

INDEX

CALENDAR 1916-1917

July 3, Monday:	Opening of the Summer School.
August 5, Saturday:	Close of the Summer School.
September 16:	Meeting of the Faculty.
September 18:	First day of Registration.
September 18-21:	Examinations for Entrance.
September 20:	Opening of the First Term.
November 30:	Thanksgiving Day.
December 23:	Close of the First Term.
January 3:	Opening of the Second Term.
January 3:	Opening of the Short Courses.
January 10:	Birthday of General R. E. Lee.
February 21:	Exercises in commemoration of the 116th Anniversary of the Demosthenian Society and the 97th Anniversary of the Phi Kappa Society.
February 22:	Washington's Birthday.
March 17:	Close of the Second Term.
March 19:	Opening of the Third Term.
May 20:	Last date for submission of Prize Essays.
June 11:	Meeting of the Board of Visitors.
June 12:	Annual Session of the Board of Trustees.
June 13-15:	Examinations for entrance.
June 15, Friday:	4:00 P. M., Military exercises and drill.
June 16, Saturday:	8:30 P. M., Sophomore declamation contst.
June 17, Sunday:	11:00 A. M., Baccalaureate Sermon.
June 18, Monday:	10:30 A. M., Exercises of the undergraduates representing the branches of the University. 8:30 P. M., Champion debate between the Phi Kappa and Demosthenian Societies.
June 19, Tuesday:	10:30 A. M., Business meeting of the Alumni Society. 12 M., Oration before the Alumni Society. 4:30 P. M., Junior orations and delivery of Sophomore cup.
June, 20, Wednesday:	Commencement Day. Close of the 117th annual session.

The State College of Agriculture

HISTORICAL STATEMENT.

The Georgia State College of Agriculture was organized in accordance with an act of the General Assembly of the State passed July 21, 1906. It is an outgrowth of the State College of Agriculture and Mechanics Arts established as a department of the University of Georgia on May 1, 1872, by the Trustees of the University who accepted for the purpose, funds arising from the landscrip. From time to time support was received from the federal government, until the State, realizing that agriculture represents its principal industry, decided by legislative enactment to differentiate and specifically support an agricultural college.

The act of 1906 establishing the present College and better known as the "Conner Bill," contains the following preamble which sets forth reasons for enlarging the work of the State College of Agriculture along both educational and research lines:

"Agriculture is the principal industry of the State, and the main source from which the material prosperity of the State must come. Experience has demonstrated the great value of agricultural education in permanently improving the soil, multiplying its yield and increasing the value of its products. There is a growing demand by the people of the State for agricultural education, and for the practical benefits of scientific research in this line, and for improved methods in farming."

This act provides that the State College of Agriculture shall be under the direction of a Board of Trustees, consisting of eleven men, three selected from the trustees of the University proper, three from the directors of the Georgia Experiment Station, including the Commissioner of Agriculture, and five from the State at large. The Board has the same functions and exercises the same authority as that of the trustees of similarly organized coördinated divisions of the University, but is subject, in accordance with the provisions of the constitution of the State, to the general control of the University trustees.

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OF THE UNIVERSITY OF GEORGIA.

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C. L. VEATCH, Assistant Botany.
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GENERAL STATEMENT

The Georgia State College of Agriculture constitutes an integral part of the University System of Georgia, and while it has certain buildings, lands and equipment set aside for the special use of its corps of instructors and students, its work in general is closely associated with the University proper, so that agricultural students enjoy all the advantages which a great university system affords. These advantages include instruction and advice from the professors in other colleges, use of the general libraries and scientific laboratories, and membership in the various class and society organizations. This is most desirable, since class-room training is but a part of a man's education.

OBJECTS OF THE COLLEGE.

The purpose and plan of the College of Agriculture are, first to train agricultural students in the sciences pertaining to correct farm practice that they may receive a thorough and liberal education; second, to so arrange the course of instruction that men of limited means, opportunity and education may receive the greatest practical benefit by attending courses of varying length provided by the College; third, to take an active part in the dissemination of agricultural knowledge among the farmers of the state by means of extension teaching, farmers' institutes, bulletins, and other publications of a popular and practical nature.

THE AGRICULTURAL HALL.

The Agricultural Hall was dedicated January 18, 1909, with appropriate ceremonies. The building is 264 feet long, 72 feet wide, three stories high. It is constructed of cream-colored pressed brick, Bedford limestone for the foundation, terra cotta trimmings in designs symbolical of the purposes of the building, eaves wide and roof of red tile. The structure contains 60,000 square feet of floor space, has sixty large rooms, comprising administration offices, department offices, private laboratories, library, class laboratories for the departments of agronomy, animal husbandry, dairy husbandry, cotton industry, horticulture, agricultural engineering, veterinary medicine, bacteriology, entomology, agricultural chemistry; class room and quarters for extension work, for demonstrations work, boys' corn and pig clubs, girls' canning and poultry clubs, and an auditorium with a seating capacity of 400.

The building is heated by steam, lighted by electricity, is kept comfortable, clean and sanitary. Shower baths and lockers are provided for students whose laboratory work in shop or field require these conveniences.

CAMPUS OF COLLEGE OF AGRICULTURE.

The campus of the College of Agriculture is situated about half a mile south of the administrative building of the University of Georgia. The Agricultural Hall occupies a commanding position upon the brow of a hill, the surrounding grounds presenting unusual advantages for landscape gardening and the making of a beautiful campus. Model roads and walks are being perfected, trees and shrubs have been planted to supplement those nature has already provided, and the art of landscape gardening is being applied as means and time will admit.

AGRICULTURAL LIBRARY.

The library and reading room occupy large, well lighted rooms on the main floor of Agricultural Hall. A modern agricultural library has been established, consisting not only of important books recently issued, but a practically complete set of bulletins, appertaining to agricultural subjects, of all the states and departments of the federal government; encylopedias, herd and flock books, and bound volumes of leading publications.

About one hundred publications including the leading agricultural journals of this and foreign countries; scientific and trade papers bearing upon agriculture, a few popular magazines and leading daily and weekly papers of the state, are placed in the reading room for use of the students.

The library is open for use of students from 9 a. m. till 6 p. m. on week days, and books, not on the reserve shelves may be borrowed for a period of two weeks.

FOREST SCHOOL LIBRARY AND MUSEUM.

The Forest School occupies a three-story stone building adjacent to the main agricultural building. This has been equipped with laboratories, class-rooms, offices and museum. The library contains copies of the important books relating to forestry, a complete file of the Forest Service circulars and bulletins, and a complete file of literature relative to state, coöperative and association forestry. Forty-five forestry, lumber, trade and woodcraft journals are on the tables.

The museum consists of a collection of logging tools, mill machinery, forestry instruments and wood and tree specimens.

AGRICULTURAL LABORATORIES

Since the success of instruction in agriculture depends largely upon the thoroughness and efficiency of laboratory training, the equipment of an institution in this respect is important. Below will be found a brief description of these laboratories.

AGRONOMY LABORATORIES.

The laboratories of this department are located in the east end of Agricultural Hall and include a soil laboratory, farm crops laboratory, cotton industry laboratory and private laboratories, with accompanying store rooms, also a section of the greenhouses.

The soil laboratory is a well lighted room equipped with modern desks. Each desk is supplied with gas, water and sinks. General equipment in the laboratory includes water still, drying ovens, hot plates, soil shaker and centrifuge, water baths, soil compacters, solution scales and balances. A series of soils of different kinds are kept in bins for the use of the students. The work in this laboratory is arranged for the purpose of giving the student a knowledge of the soils of Georgia, their physical properties and methods of management.

The farm crops laboratory is used for studying such farm crops as corn, wheat, oats, barley, rye, the forage crops and many miscellaneous crops, such as peanuts, rice, tobacco, etc., also for the study of weed pests of the farm. It is equipped with laboratory tables, microscopes, seed germination boxes, balances, etc. Along the walls are seed cases in which are kept specimens of the different crops as well as different market grades of grain. An herbarium has been started in which are mounted specimens of many native grasses and many of the weeds of Georgia.

The cotton industry laboratory is equipped for cotton grading, identifying varieties and making a close study of the cotton plant, its seed and fiber. Plant breeding studies are also conducted here. Characteristics of plants are noted and the results of crossing and selection are studied.

A portion of the greenhouse is set aside for laboratory work of this department. Soil fertility experiments and plant breeding are carried on by students in a part of the house.

Private laboratories are available for instructors in preparing work for students and for study along special lines.

ANIMAL HUSBANDRY LABORATORIES.

About seven thousand square feet of space in the basement of Agricultural Hall, is set aside for laboratory work in theoretical and practical instruction in dairying. In the butter making laboratory are various makes of separators, both hand and power which the students are required to set up and operate, thus giving them a first hand knowledge of the type best suited to their farm needs. The laboratory has been equipped with reference to the home dairy rather than a creamery. The milk testing laboratory is a large, well lighted room in which several models of Babcock testers are

used. Various methods are used for determining the adulteration of milk. Facilities are also provided for determining the solids not fat, as well as how to make curd tests.

A pasteurizing laboratory in which students are taught how to meet the highest sanitary requirements as well as how to prepare dairy products for storage and long shipment, is provided. Refrigerating facilities in which temperature requirements are met in ripening, storing and holding of different dairy products, are afforded for laboratory work of this nature.

Students are provided herd books and taught how to trace pedigrees as well as the use of forms for tabulating and keeping them. Various breeds of live stock on the farm are used for stock judging, breeding and feeding experiments.

HORTICULTURAL LABORATORIES.

The department of horticulture has three laboratories. A student laboratory and a private laboratory are in the Agricultural Hall, and the third, a spraying laboratory on the horticultural grounds, situated about 400 yards southeast of the main building.

The students' laboratory is equipped with various models, microscopes, samples of horticultural tools, etc. The private laboratory contains a culture room, fume hoods and other essential fixtures for research work in horticulture. Between the two laboratories is the office with vault apartment for records. A barn, tool shed and spray house constitute a part of the equipment for students' field work.

Greenhouse. The College greenhouses consist of three houses each 75 feet long, and 25 feet wide, divided into seven compartments so that practical, experimental and class work can be carried on in them at the same time. The structures are semi-steel, the three being connected with a metal-lathe concrete work room. The plans for the development of the greenhouse plant provide that the present unit shall constitute only a wing of the future structure.

AGRICULTURAL ENGINEERING LABORATORIES.

The agricultural engineering laboratories, class rooms, offices, and shops are located in the agricultural engineering building just back of the main agricultural building and faces the main drive.

The basement contains the heavy farm machinery laboratory, the cement testing laboratory and the material testing laboratory. There is also a locker room with lavatories, and the shower bath room. The heavy farm machinery laboratory contains tractors, manure spreaders, threshing outfits, silage cutters and other heavier farm machinery. The cement testing laboratory contains all of the necessary apparatus used in complete testing of cements, also simple apparatus for speedy determinations of strength of cement. The

material testing laboratory is also equipped with machinery for determining strengths of all classes of building material.

The first floor contains the forge shop, the light farm machinery laboratory, the home and miscellaneous laboratory and the farm machinery lecture room. The forge shop is equipped with 24 latest Buffalo forges with a full completment of tools. Adjoining are an instructor's room, tool room, also storage and power room. The light farm machinery laboratory is equipped with latest farm machinery such as seeders, cultivators and light harvesting and storing machinery. The home and miscellaneous laboratory is equipped with home appliances and machinery for economy and convenience. These include lighting, heating and water supply systems, cooking appliances, drainage and ventillation represented by models and installations.

On the second floor are located the main offices, two lecture rooms, the freshman drawing and surveying room, the junior drawing room and woodshop.

The woodshop contains 52 benches with a full set of tools, a single surface planer, rip and cut-off saw, matcher and band saw. On this floor is also an instructor's room, tool and supply room and freshman drawing and surveying room containing drawing tables for 50 students, also lockers for drawing tools and a drawing file.

Surveying equipment sufficient to put 10 parties fully equipped in the field, for terracing, levelling, compass surveying and plane table map work is provided. The junior drawing room is equipped with 40 drawing tables with parallel attachments, a full set of models of farm buildings, also models of farm gates, fencing and fencing materials, silos, corn cribs, tool sheds, meat curing and smoke house.

AGRICULTURAL CHEMISTRY LABORATORIES.

The courses of instruction offered in this department are designed to prepare students for practical work. The laboratories occupy the west end of the top floor of Agricultural Hall, the main laboratory being well ventilated and lighted from three sides. These laboratories are equipped with new and modern desks, hoods, tables for miscroscopic work, and apparatus for accommodating sixty to seventy-five students. Adjoining the main laboratory is a well-lighted balance room equipped with accurate balances.

Adjoining the instructor's office is a private laboratory separated from the main laboratory by the store-room. This laboratory is equipped for analysis of soils, feeds, fertilizers, waters, etc.

Each desk in the laboratory is supplied with gas, water and sinks, Ample facilities are offered for students to specialize in the different branches of analytical work, such as soils, feeds and other agricultural products.

A laboratory has been equipped with modern apparatus for analyzing soil types of the state. The department is conducting a soil survey of the state in coöperation with the Bureau of Soils and all types of soil in the several counties surveyed are sent to the laboratory for chemical analyses.

VETERINARY LABORATORIES.

Buildings of the veterinary department consist of a main building of two stories and basement, the veterinary hospital, hog house and other small houses. The main veterinary building contains two large class rooms and two large laboratories for class purposes. The basement is used exclusively as a laboratory for manufacturing hog cholera serum. The class room and laboratories are completely equipped with furniture, desks, cabinets, sterilizers, microscopes, incubators, skeletons, models, charts, museum specimens and other articles necessary and useful in the study of veterinary science.

Veterinary Hospital. The veterinary hospital is provided with box stalls for sick animals, bath stall, clinic room, operating room, dissecting room, office and dispensary, and room for attendant. A complete equipment of hopples, side lines, slings, casting harness, dental, operating and obstetrical instruments and appliances is provided. Clinics at which sick or injured animals are treated free of charge are held at stated periods during the school year. Students are trained in the diagnosis and treatment of diseased animals, required to prepare and administer medicines by various methods, take proper care, and maintain correct hygienic conditions. Score cards are used for examinations of animals for diseases, unsoundness and blemishes.

The dissecting room is used during the colder months for the study of anatomy and physiology, students being required to dissect and study various parts of farm animals, and observe the location of internal organs, the principal blood vessels, nerve and other structures.

Hog cholera serum is manufactured at the hospital and affords frequent opportunities for autopsies of hogs, and, therefore, a study of contagious and parasitic diseases.

Hog Cholera Serum. The General Assembly of Georgia made an appropriation in 1911 for manufacturing Dorset-Niles hog cholera serum. The manufacture of it continues, being carried on by the veterinary department of the College, that students may be better instructed concerning swine diseases and the manufacture and administration of the cholera serum. The serum is manufactured and supplied at cost to owners of swine through the office of the state veterinarian at the state capitol. The serum plant has

been enlarged to meet the increased demand, a modern, sanitary hog house sufficient to house 60 hogs, being added.

FORESTRY LABORATORIES.

The school occupies a twelve-room stone building on the University campus and is situated immediately adjacent to the Agricultural Hall. This building is equipped with class-rooms, laboratories, offices, museum and library necessary for the successful presentation of technical forestry subjects.

The timber testing laboratory is a room 40 x 60 feet situated in the basement of the new agricultural engineering building, where a timber testing machine has been installed. The forest survey drafting room and shops are also in agricultural engineering building. Courses in forest by-products and distillation are given in the Department of Agricultural Chemistry, situated in Agricultural Hall. A still, to be devoted to the work in the distillation of turpentine, will soon be added to the equipment of this department.

THE COLLEGE FARM

Contiguous to the grounds of the main building and extending southward for more than a mile, lies the College farm, consisting of 830 acres. The land is of varied character as to physical condition, types of soil and fertility. Some of it is rough and broken, a part fairly level, and a portion well wooded. This diversity admits of tests applicable to types of soils and conditions found in many sections of the state and is, therefore, an advantage.

Previous to being taken over by the College, the land had been rented and handled in a careless manner. No crop rotation system had been followed, very little livestock had been kept, and as a result, the land was eroded in many places and was very generally in poor physical condition. This condition is not unlike that of a vast acreage in Georgia, and it has been of advantage in affording a basis of practical instruction in soil building by crop rotation, the use of legumes, growing live stock, terracing, etc.

The farm has been surveyed and mapped with a view to the construction of roads, bridges, walks, and additional buildings, as funds become available. A survey has also been made of the soil types, to determine their physical characteristics.

College Barns. As funds have become available the College has erected plain, but substantial barns after plans prepared by the Department of Animal Husbandry and drawn by the Agricultural Engineering Department. Their low cost and general untility have made them popular among farmers. The College has combined its general stock barn and dairy barn which heretofore have been separate pending the acquirement of sufficient funds to develop this more economical plan. The barn for dairy and general live stock

consists of one large hay and grain barn with two stall extensions, modernly equipped for economical feeding and sanitary housing of cattle and horses. The dairy portion is completely equipped for the most careful and scientific handling of the products of the herd.

Two silos, one with a capacity of 150 tons and another of 200 ton capacity are used at this barn.

The Department of Agronomy has two barns for storage and laboratory work located on the experimental plats. These are completely equipped for the purpose. The Horticultural Department has a barn on the horticultural grounds, new and well equipped. These and the tool sheds, bull houses, paddocks for young stock, dipping vats for hogs and cattle constitute in the main, the barn facilities of the College.

LIVESTOCK.

Dairy Herd. With a small beginning commensurate with the sum available for the purpose, the College began in 1907 to establish its dairy herd, and has increased it from 17 to 34 Jerseys and from 0 to 32 Holsteins. A pure bred bull of each breed is owned. Of the Jerseys 18 are pure bred and of the Holsteins 14 are pure bred. Some high producing cows have been developed and the production and profits per cow has been materially increased.

Beef Herd. A Hereford herd of 54 head is being pastured during grazing season on a portion of the College farm which had been abandoned for crop purposes because of its eroded and depleted condition. A valuable object lesson is thus being afforded as to how to utilize waste lands and reclaim them for crops. An object lesson is also afforded as to how good beef types can be developed with native cows by use of a pure bred sire.

The Shorthorn herd consists of a herd bull and 8 females. Most of the cows are of the dual purpose type and are ideal farmers' cows.

Hog Herd. Tamworths and Berkshires are being bred on the College farm as representatives of the extreme types of bacon and lard producing hogs. Offsprings of these animals are being widely distributed in the state for breeding purposes.

Work Stock. Percherons for draft stock are being emphasized at the College. Two registered mares are now owned by the College as well as a registered stallion and some grade mares. This kind of farm power equipment is being added as fast as means will admit. Various types of mules are also used. The College has in all 26 head of horses and mules.

Horse Breeding. Aside from the registered Percheron mares and the pure bred stallion, and excellent grade mares as a foundation for breeding work on the farm, the College has been able to interest

various communities in the state in buying Percheron mares and stallions. When funds are obtained, quite extensive plans will be put in force for assisting the farmers of the state to get better breeds of not only horses but of beef and dairy cattle.

THE DEMONSTRATION FIELD.

A field of twenty-four acres has been set aside for experimental work. This area of land has been subdivided into more than 1,000 plats, ranging in size from 1-50 to 1-10 of an acre. Through the medium of this experimental field, nature is constantly being asked questions, and new facts of interest are being brought to light by actual field tests; the value of principles and theories developed through laboratory research is determined, and thus the education of the student is made more complete, since he not only receives instruction in theory in the class-room, but has the underlying scientific principles fully demonstrated to him in the laboratory, and sees the actual results which follow the application of these principles in farm practice.

The demonstration field is used for the development of strains of cotton, corn, wheat, oats, barley, rye, and alfalfa, as well as for testing new varieties that will be suitable for growing under Georgia conditions.

The value of crop rotations, relation of fertilizers and manures to crop production and the influence of different methods of cultivation revealed by the demonstration field are not only made a part of the knowledge of the student, but the results are sent, free of charge, to the farmers of the state.

Through co-operation between this institution and the United States Department of Agriculture a special agent in cereal investigation is located at the State College of Agriculture to test varieties of cereals. A part of this work is done on the demonstration field of the College farm and a part is done at substations in Brooks and Turner counties. These results are also available to the farmers of the state.

In connection with the work in Cotton Industry, special plats are set aside for conducting experiments in cotton breeding, both by selecting and hybridization, and students are given opportunity to see the results of their own experiments. A test of all the leading varieties of cotton is also conducted. During the growing and harvesting seasons, students are required to write full descriptions of varieties, and be able to distinguish one from another.

A ten-acre tract in Brooks county and a similar area in Turner county are used for experimental work in variety tests for south Georgia conditions.

In twenty-seven other counties of the state, three-acre tracts are used for fertilizer demonstrations.

ORCHARDS AND GARDENS.

About thirty-five acres of the College farm have been set aside for horticultural purposes. The land is rolling, and, with the exception of one or two acres of sand, which will serve well for truck crops, the soil is red clay. The field has been plotted and a variety orchard planted, in which all the varieties of apples, pears, peaches, plums and other fruits recommended for this section are well represented, so that a comparative study of their qualities can be made. As rapidly as funds will permit, a truck garden is being developed, experimental plats laid out, and a commercial orchard started. A plantation of small fruit is already well established. For the benefit of the fruit growers at large, the horticultural grounds will serve as a testing field for all varieties, and also as a laboratory for experiment in and demonstrations of all practices of orchard and garden management for the benefit of the student.

FOREST GARDEN.

The forest garden includes a nursery of three acres where seedlings of the various species of tree growth which will thrive in Georgia are grown. In this garden are conducted a series of experiments to determine the effect of heredity upon seed; influence of source of supply on seed; and the influence of methods of planting. A twenty-acre woodlot adjacent to the school furnishes a natural arboretum, more than sixty species of native trees and shrubs being represented. From time to time other specimens are added and it is planned that during the next year there will be found growing in the arboretum all trees and shrubs that will thrive in Georgia.

Student Organizations

THE AGRICULTURAL CLUB.

The students of the College have an organization of their own, known as the Agricultural Club, which meets every week. The purpose of the society is to obtain drill in parliamentary practice, and in declamation and debate, as well as to discuss the scientific and practical phases of many important agricultural problems. The club publishes the "Agricultural Quarterly," which is not only distributed among the students, but is circulated over the state. This publication forms a desirable medium of communication between students and farmers, and furnishes useful literary training to students.

HORTICULTURAL CLUB.

The students interested in horticulture have a club which meets semi-monthly for the discussion of live problems in that field of agriculture.

FOREST CLUB.

The Forest Club is an organization of the students in the Forest School. Meetings occur regularly on Wednesday evening of each week. The object of the club is four-fold: 1. To keep its members informed on current literature; 2. To give its members opportunity for practice in public speaking and argumentation; 3. To bring its members in contact with men prominent in forestry and allied subjects through providing for these men to address the club; 4. To promote good fellowship among the students of the Forest School.

The club publishes the Georgian Forester, an annual treating of technical and popular forestry, which is circulated among the leading lumbermen of the south, the high schools of Georgia, and the forest schools and university libraries of the United States and Canada.

Fees and Expenses

Attention is called to the remarkably low cost of a full collegiate year in the College. By rooming in the dormitories, a young man can live at the University almost as cheaply as at home.

The expenses are as follows:

Room rent in College dormitories, $2.50 per month; this includes electric lights, heavy furniture and care of room. The students provide fuel, mattress, bed furnishings and toilet articles. Board in Denmark Dining Hall costs about $10.00 a month on the co-operative plan. Room rent and board are paid monthly. Furnished rooms in private families may be secured at $3.00, $5.00 or more per month for each occupant.

The Board of Trustees reserves the right to charge a sufficient fee in all laboratories to cover actual expenses of materials used and breakages incurred. This fee varies from $2.50 to $3.00.

Laundry will cost about $1.25 a month, and books about $12.50 a year. All students are required to join one of the literary societies, the initiation fee being $2.00.

Uniforms for the military department will cost about $25.00. These will last two or three years.

In short, the necessary expenses of a student for the college year of nine months, need not exceed $175.00 to $225.00.

SCHOLARSHIPS.

The Georgia Bankers' Association has established a student loan fund. Thirteen loans to the value of $100.00 each were made in the collegiate year 1915-1916, the condition imposed being that the young men receiving the benefits of this fund shall undertake the repayment of the same with interest at four per cent one year after graduation.

The Southern Railway Company has donated the sum of $1000.00 to be known as the Southern Railway Loan Fund: William Wilson Finley Foundation in the Georgia State College of Agriculture. This fund is to be administered on the principal of the Brown fund and the Georgia Bankers' Association fund. Naturally, only a few appointments can be made under this foundation for the college year 1916-1917. The only restriction placed upon this fund is that students benefiting by it live in counties traversed by the Southern Railway, Augusta Southern, Tallulah Falls Railway, Georgia Southern and Florida Railway, Macon and Birmingham Railway, or Hawkinsville and Florida Southern Railway.

One scholarship valued at $250.00, given by H. G. Hastings & Co., Atlanta, Ga. to the boy making the best record in the corn club work for the whole state.

One scholarship valued at $100.00, given by Hon. Gordon Lee, Chickamauga, Ga., to the boy making the best record in the corn club work in the 7th congressional district.

Two hundred scholarships valued at $25.00 each to the corn club boys' short course to be held in August, 1916.

One hundred scholarships valued at $25.00 each to the canning club girls' short course to be held in August, 1916.

These short course scholarships have been given by the Georgia Bankers' Association, the State Fair, the Southeastern Fair, by various railroads, boards of trade, chambers of commerce, women's clubs, business men, and many other patriotic citizens.

LIST OF PRIZES, 1916.

Junior Scholarship—$50.00 in gold given by the Virginia-Carolina Chemical Co. to the student showing the greatest proficiency in all agricultural subjects for the college year 1915-16.

Sophomore Scholarship—$40.00 in gold given by the Virginia-Carolina Chemical Co. to the students showing the greatest proficiency in all agricultural subjects for the college year 1915-16.

Freshman Scholarship—$25.00 in gold given by the Virginia-

Carolina Chemical Co. to the student showing the greatest proficiency in all agricultural subjects for the college year 1915-16.

One Year Course—$25.00 in gold given by the Virginia-Carolina Chemical Co. to the student showing the greatest proficiency in all agricultural subjects for the college year 1915-16.

Trustees' Prize—$25.00 in gold from the Board of Trustees to the student writing the best essay on "The Effect of the War on Southern Agriculture."

$25.00 in gold given by the American Coal Products Co. to the student writing the best essay on "Sulphate of Ammonia as an Economic Source of Nitrogen, and Its Use in Agriculture."

$25.00 in gold given by the Virginia-Carolina Chemical Co. to the student writing the best essay on "Methods of Fertilization Without Imported Potash Salts."

$25.00 in gold given by the Cotton Seed Crushers' Association of Georgia for the student writing the best essay on "The Influence of Cotton Seed Products on Southern Agriculture."

$10.00 in gold given by H. G. Hastings & Co. to the student writing the best essay on "The Value of Improved Seed to the Farmer."

$10.00 in gold given by H. G. Hastings & Co. to the student writing the best essay on "To What Extent Should Crop Residue be Supplemented by Cover Crops to Maintain Soil Fertility."

AGRICULTURAL PUBLICATIONS.

A number of popular bulletins are issued each year for distribution among the farmers of the state, giving information which the farmers seem to be most in need of at the time. They are not technical but convey in popular language the results of experiments carried on at the College, or acquired from other reliable sources. Special stress is being given in these bulletins to providing the Georgia farmer with the information he is now seeking to enable him to diversify his farming and abandon the policy of a single crop.

A press service is conducted by an editor of the College. This amounts to about 200 columns of reading matter per week. Practically all of the dailies and weeklies of the state use it. The weekly papers are provided a free plate service, or plates of prepared type. In the two ways mentioned the College is reaching the bulk of reading farmers in the state with timely agricultural information, on an average of once a week during the school session.

Terms of Admission

Students must be 16 years of age. Veterinary students 17.

Four-year Degree Course: Admission to the four-year degree course requires 14 units.

Required Subjects.

English, 3, Geometry, 1,
Algebra, 1 ½, History, 2,
Foreign Language, 2 units.

Not more than 6½ units can be selected from the following: Solid Geometry, ½; Agriculture, 3; Physical Geography, 1;* Drawing, 1; Physics, 1; Physiology, ½; Botany, 1; Zoölogy, 1; Chemistry, 1; *Manual Training, 2; *Commercial subjects, (Typewriting, Shorthand, etc.), 2; Additional—History, Mathematics, English, or foreign language, each 1.

A certificate cannot be corrected after the beginning of the second term. Entrance examinations will be held at Athens and throughout the state in June, and September.

*Not more than three units will be allowed on freehand drawing, manual training and commercial subjects.

Summary of Work Required to Secure Above Units.

A study of English Grammar, Rhetoric, and a number of English Classics, as Shakespears, Milton, Tennyson.

A study of Arithmetic, High School Algebra and Plane Geometry.

A study of two of the following history groups: Ancient History, English History, American History and Civics, Modern History.

A study of a foreign language. Any foreign language can be offered, but in case the student is conditioned he will be expected to take either German or French.

A unit's credit will be given for work in Physical Geography, Physics, Botany, Chemistry, Physiology, and ½ unit in Zoölogy, where the work has covered a standard text and laboratory work.

One unit will be given for work in general agriculture, and one unit each in Agronomy, Animal Husbandry, and Horticulture. In each case the student must have had the required laboratory work.

Drawings must be presented by the students who wish credit in either freehand or mechanical drawing or in the combination of the two, for one unit.

Students having finished approved courses in both wood and forge work that has covered a year's work of five periods a week of 1½ hours each, are entitled to two units, or one unit for either.

An approved course in Bookkeeping, Shorthand, and Typewriting will be accepted as one unit. Double periods required.

For further information in regard to entrance send for special bulletin.

SELF-HELP.

It is the purpose of the College to encourage students to work as much of their time as possible, for both economic and practical reasons. In this way the cost to the student may be reduced considerably, and his knowledge of how to apply scientific principles in farm practice may be materially broadened. It is both important and necessary that labor with the hands should be recognized as honorable and essential to the welfare of an agricultural people.

Students in the College of Agriculture have the same opportunities of securing help from the Charles McDonald Brown Scholarship Fund as those in other departments of the University at Athens. The interest on this fund is loaned to worthy young men on condition that they obligate themselves to return it with four per cent. interest. Application for scholarship should be made to the Chancellor of the University. A special circular of information concerning the fund and blank forms of application will be supplied on request. This fund makes it possible for many young men of limited means to secure an education.

COURSES OF INSTRUCTION

The four-year course provides for a liberal and thorough training along scientific lines in agronomy, soil fertility, animal husbandry, veterinary medicine, dairy husbandry, horticulture, forestry, farm mechanics and cotton industry. General training in chemistry, physics, botany, biology, English and mathematics is also provided. Since the field of agricultural education is so broad that it is quite impossible for a student to pursue all the courses offered in four years, certain fundamental studies are prescribed, and the largest liberty of selection commensurate with the best interests of the student, is permitted. In this way the student is enabled to select a course which is in keeping with his taste, and at the same time obtain sufficient special training to fit him for the line of work he desires to pursue after graduating.

The one-year course is provided for men who have only a limited amount of time and money at their disposal, and who in many instances have not the fundamental training which would enable them to pursue a four-year course of study advantageously. Men of this class, however, can improve their knowledge and ability to manage farms and meet their problems by pursuing this course. Naturally, the training provided in this course is of a restricted and practical nature.

Summer school work is offered for collegiate courses, not more than one course being allowed a student, credit for a degree ap-

plying as for the regular term. Summer term work for graduate students is also offered.

In connection with the Summer School for teachers of the University of Georgia, courses are offered that are applicable to teaching elementary and high school agriculture.

A summer cotton grading course is offered, the session being practically co-extensive with that of the Summer School of the University.

Summer work is offered at Forest Camp in the Blue Ridge mountains for both required work for a degree and for the ranger course.

The three-months course and the ten-day courses and conferences are provided for those actually engaged in farming or interested directly or indirectly in it who desire to obtain the largest amount of practical knowledge which they can apply immediately and with profit, at a minimum of cost.

Ten-day courses are given, one for adults in January, and the other for boy and girl club winners, in August.

DEGREE COURSES IN AGRICULTURE

The degree of Bachelor of Science in Agriculture is conferred on those who complete the four-year course. Those who desire special information relative to any part of the course may obtain it by writing to the college authorities. An outline of the degree course is as follows.

Freshman.		Sophomore.	
Agronomy 1, 2,	2 hrs.	Animal Husb. 2, 3, 4 and 5	3 hrs.
Animal Husbandry 1,	1 "	Botany 1,	3 "
Agr. Eng. 1, 2, 3, 4, 5,	3 "	Agr. Chemistry 2b	3 "
Horticulture 1, 2 and 3,	3 "	History 4a, or 2a and Economics 2,	3 "
English 1,	3 "	English 2,	3 "
Chemistry 1,	3 "	Physics 2,	3 "
Mathematics 1 and 2,	3 "	Agronomy 5, 6,	3 "
Military Science	1 "		
	19 hrs.		21 hrs.

The division of the time in the junior and senior years shall be as follows:

Major	12 hrs.
Minor, group 1,	6 "
Minor, group 2,	6 "
Gen. Elective,	12 "
	36 hrs.

Total requirements for a degree, exclusive of military science, but including laboratories, will be 75 hrs. Not more than 21 hrs.

can be taken from any one department in the junior and senior years. Major courses can be selected from the departments of agronomy, animal husbandry, horticulture, agricultural chemistry and agricultural engineering.

Group 1, from which 6 hours are required, is as follows:

Agricultural Chemistry
Botany
Zoölogy
Physics
Mathematics

Group 2, from which 6 hours shall be required, is as follows:

Animal Husbandry 6, 7
Agronomy 3
Veterinary Science
Agr. Engineering 6, 7, 8, 9
Bacteriology
Entomology
Forestry
Geology
Horticulture 10

Not later than the beginning of the junior year the student must submit a program written on a prescribed form for the schedule of work in the junior and senior years, showing his majors and minors, as well as his general electives. This program must be approved by the head of the department in which he takes his major.

Changes in Courses. The present change in curriculum will go into effect with freshmen Sept. 1916. Sophomores can graduate under new curriculum if they desire. Juniors and seniors will continue under the old catalog.

Foreign Language. Students who do not present two units of a foreign language at entrance may take a foreign language in the freshman and sophomore years, and carry over mathematics and physics into the junior and senior years.

Those desiring to study medicine may continue the study of French and German in the junior and senior years, and thus prepare themselves for entrance into the highest grade medical schools of the United States.

Laboratory Periods. In the College of Agriculture two laboratory hours count as one hour of recitation, and are included on that basis in the number of hours required.

DEGREE COURSES IN FORESTRY

In the four-year professional course, opportunity is given to specialize in certain main lines. For those students desiring

to specialize in city forestry an opportunity is offered for the election of landscape gardening and allied subjects. for those desiring to specialize in technical forestry, with the object of entering the federal or state service, the election of advanced courses in botany and forestry; for those desiring to specialize in lumber salesmanship and mill superintendency, the election of courses in economics and business administration; for those desiring to specialize in dendropathology, the election of advanced courses in botany.

Courses of Study

Freshman Year.

Subject	Credits
Chemistry 2, Inorganic Chemistry	3
Botany 1, General Botany	3
English 1, English Composition	3
Math. 1, Trigonometry	2
Forest 19, Principles of Forestry	1
Forest 4, Dendrology	3
Agr. Eng. 1, Shop Work, Agr. Eng. 2a, Drawing, Agr. Eng. 3 and 4, Machinery and Power	3
Summer Term.	
Forest 7, Forest Mensuration	2
Forest 12, General Forestry	4
	24

Sophomore Year.

Agri. Chem. 1, Organic Chemistry	3
Eco. 5, Principles of Economics	3
Physics 2, College Physics, or English 6 and 7, English Composition	3
Agr. Eng. 5a, Surveying	3
Forest 5, Silviculture	3
Agron. 5 and 6, Soil Physics and Fertility	3
Summer Term.	
Forest 7, Forest Mensuration	2
Forest 16, Forest Practice	4
	24

Junior and Senior Years.

Not later than the beginning of the junior year the student is required to designate his specialization and must select, with the advice and approval of the head of the department, the course of study he desires to pursue during the following two years. The major and one minor must be selected from technical forestry subjects, one minor may be selected from a department in Group III, and twelve hours of general electives from departments in Group IV. Whether or not a student will be permitted to elect more than eighteen hours of work a year will depend upon his class record.

(A major consists of twelve credit hours, a minor of six credit hours.)

Group I, Major.

Subject	Credits
Forest 8, Forest Management	6
Forest 9, Utilization	3
Forest 1, Policy Forest 10, History Forest 11, Economics	3
	12

Group II, Minor.

Forest 15, Wood Technology	2
Agr. Eng. 7b, Timber Physics	2
Agri. Chem. 5, Forest By-products	2
	6

Group III, Minor.

Agr. Engineering
Agricultural Chemistry
Horticulture
Botany

Group IV, General Electives.

General electives may be chosen from any department of the College of Agriculture or from any college or school of the University.

DEGREE COURSE IN VETERINARY MEDICINE

Freshman and sophomore work of a four-year course, leading to the degree of Doctor of Veterinary Medicine (D. V. M.), is offered. By the time students have completed the freshman and sophomore work the purpose is to offer the complete course.

The Department of Veterinary Medicine aims to offer a broad and liberal course in theoretical and technical, as well as practical studies, that pertain to veterinary medicine, so that the graduate may be equipped to engage in any line of veterinary work.

The establishment of this course in connection with the College of Agriculture enables the student to avail himself of opportunities to secure additional education along agricultural lines.

Courses of Study

Freshman.		Sophomore.	
Anatomy I, II, III	6 hrs.	Anatomy IV, V, VI,	6 hrs.
Animal Hus. 2, 3, 4, 5,	4 "	Animal Husbandry 8a,	1 "
Chemistry 1,	3 "	Bacteriology	3 "
English 1,	3 "	Biology 3,	3 "
Histology (Anatomy VII.)	2 "	Agr. Chemistry 1 & 1a,	3 "
Physiology 1,	3 "	Embryology (Anatomy VIII.)	1 "
	21 hrs.	Feeds and Feeding (Animal Husbandry 9,)	3 "
		Materia Medica	1 "
		Physiology 2,	2 "
			23 hrs.

DESCRIPTION OF COURSES

AGRONOMY

JNO. R. FAIN, Professor.
G. A. CRABB, Junior Professor.
L. E. RAST, Junior Professor.
S. H. STARR, Adjunct Prof. Farm Management.
P. O. VANATTER, Instructor.
*R. R. CHILDS, Scientific Assistant.
E. C. WESTBROOK, Instructor.
PAUL TABOR, Instructor.
BRIGHT McCONNELL, Tutor.

1. **Cereals.** The cereals studied include wheat, corn, oats, barley, rye and rice; sorghum, millet and buckwheat are studied briefly in so far as the grains are used for food. The study of these cereals include the origin, history, composition, cultivation and methods of improvement. In addition to text-book work, the cereals are grown in nursery rows convenient to the College, so that the student may study the plants first hand. The demonstration field is also used for the same purpose. Two hours. Second and third term. Freshman. *Professors Fain* and *Rast.*

2. **Cereal Judging.** This is a laboratory course. The study begins with the seed and continues with the study of the mature plant and its relation to seed production. A part of this work is in the field and a part in the demonstration barn, so that the student is taught not only the various facts in regard to the development of the cereals, ,but he acquires the habit of studying these plants in the field. The demonstration field and cereals grown in nursery rows form excellent facilities for this work. The germination of corn is given especial attention, and the records in the demonstration field are used in this connection, showing the relationship between the germination and growth of the varieties tested. One laboratory period. Second and third term. Freshman. *Professors Fain* and *Rast.*

3. **Farm Management.** Factors entering into the business of farming and maintaining farm lands are studied in their relations to each other. Special attention is paid to ways of systematizing the business, and methods of maintaining crop production of the land. In this connection a detailed study is made of rotation as adapted to Georgia conditions. Laying out the farm, methods of cropping, and records are studied. The cost of production and

*In coöperation with U. S. Department of Agriculture.

marketing is given special attention. The laboratory work will consist of conferences in which the results summarized from investigation by the student will be discussed. The student will be required to use "Rural Economics," by Carver, for parallel reading. Other reading assignments will be made from time to time. Two lectures and one laboratory period. Junior. *Professor Fain.*

*4. **Grasses and Forage Crops.** The different varieties of grasses and forage crops are studied with reference to their yield, composition and feeding value. Special attention is paid to those grasses and forage crops that are adapted to southern conditions. As silage is undoubtedly the cheapest form in which forage crops can be prepared in this state, considerable attention is given to the crops best adapted to silage, the best method of handling the crop and harvesting it. This course alternates with "12" and "13." Two lectures and one laboratory. Junior. *Professor Fain.*

5. **Soil Physics.** A study is made of the origin of soils, the different forms of disintegration, and the physical properties of different types, especially in their relation to crop production. Laboratory experiments are required with type soils. Each student may substitute his home soil for one of the types. This should be an average sample, taken from several places of the most uniform type from his home farm and community. In addition to the text, parallel reading will be assigned. Two lectures and one laboratory period. First half year. Sophomore. *Professor Crabb.*

6. **Soil Fertility.** Factors in crop production and methods of controling these are studied with especial attention to the influence of culture and fertilizing. Methods of managing the soil, to permanently increase fertility, rather than for temporary crop production, are emphasized. Special attention will be given to the uses of commercial fertilizers and general soil management. Parallel reading will be assigned. Two lectures and one laboratory period. Half year. Sophomore. *Professor Crabb.*

7. **Soil Formations.** This course will include a study of the soil provinces of the United States, their origin and methods of formation, soil series and types and their relation to crop adaptation, with especial attention given to southern soils and conditions. Parallel reading will be required. Two terms. Two lectures and one laboratory. Junior and senior. Prerequisite agronomy "5" and "6." *Professor Crabb.*

8. **Drainage and Irrigation.** The history and development of drainage and irrigation, their economic relation, the principles and practices of each as applied to southern soils. Parallel reading required. One term. Two lectures and one laboratory period. Prerequisite courses "5" and "6." Juniors and seniors. *Professor Crabb.*

9. **Soil Management.** A study will be made of the principal soil types of the South and especially of Georgia, the object being to determine the value of plant food taken from the soil by various crops and to plan methods for increasing soil fertility and establishing systems of permanent agriculture. Laboratory studies will be made in the greenhouse by pot tests and soil solutions of the principal types of the state. Parallel reading required. Prerequisite, agronomy "5" and "6." Two lectures and one laboratory period. This course will be given in 1917, and will alternate with agronomy "10." *Professor Crabb.*

*10. **Fertilizers and Manures.** This course will include the history and the development and production of the various materials used to increase crop growth. Source, manufacture, application and effect of the different materials will receive especial attention. Laboratory work will be carried on in the greenhouse to study the effect of the different fertilizing materials on plant growth. Parallel reading required. Prerequisite, agronomy "5" and "6." Two lectures and one laboratory period. Juniors and seniors. This course will alternate with agronomy "9," and will be given this year and in 1918. *Professor Crabb.*

11. **Seminar.** An opportunity for student to keep in touch with the progress in agronomy will be given in this course. Current periodicals and recent books will be reviewed. One two-hour period. Seniors. *Professors Fain, Crabb,* and *Rast.*

*12. **Weeds.** Weeds prevalent in the various sections of the state will be studied with reference to their habits of growth, crop relationship and means of eradication. Time of growth, seed habits, and means of seed distribution will be given especial attention. Students will be required to make a collection of weeds and their seeds, and classify them. This course will be given only in connection with agronomy "13," and will alternate with agronomy "4." Two lectures and one laboratory period. Given in 1917. One-half year. Senior. *Professor Fain.*

*13. **Seeds.** Seeds will be considered relative to their structure, production, vitality, purity, commercial grades, centers of production, and market variations. Two lectures and one laboratory period. Given only in connection with number "12" and alternating with number "4." Given in 1917. One-half year. Senior. *Professor Fain.*

*14. **Farm Crops.** This course is designed to give the students an opportunity to continue the study of cereals as well as to consider crops especially adapted to the state. Experiment station literature will be freely consulted. The records of the College field work will be given especial attention. Definite problems with one

or more of these crops will be given the students. Two lectures and one laboratory period. Senior. *Professor Fain.*

Cotton Industries

1. Special students who wish to take work in cotton industry will be given an opportunity to become familiar with the literature of cotton. The instructor will meet with such students once a week for conference and direction. Experiment station work in this country will receive especial attention. *Professor Rast..*

2. **Field Work for Special Students.** Field work conducted by this department give students opportunity to get first hand information from the experiments under way. The records of the field for some years are also available. *Professor Rast.*

*3. **Production of Cotton and other Fibre Crops.** Varieties, methods of selection, planting, culture, harvesting, and marketing of the cotton crop will be considered in detail. As a matter of comparison with the cotton crop, other fibre crops will be considered. The laboratory work consists of combing, mounting, testing fibres, and grading, as well as a considerable amount of field work. Junior or senior. Two lectures and one laboratory. *Professor Rast.*

4. **Plant Breeding.** A general course in the principles of breeding. While especial reference is made to the technique in cotton breeding, the breeding of other farm crops for improvement is also given important consideration. This course also includes the principles of breeding farm animals to meet the needs of students in animal husbandry. Text: "Principles of Breeding." Davenport. Supplemented by references. First half-year. Two lectures, one laboratory. Junior and senior. *Professor Rast.*

5. **Plant Breeding.** An extension of the above course which is prerequisite. A study of the methods used by the best plant and animal breeders will constitute the greater portion of this course. A certain amount of practice both in field and greenhouse is required of each student. Two lectures and one laboratory period. Second half-year. Junior and senior. *Professor Rast.*

*6. **Agricultural Colleges and Experiment Stations.** This course will include the history and development of the land-grant colleges and experiment stations in the United States and their relation to the advancement of agriculture, also a review of the development along similar lines in other countries. Especial attention is given to present methods in experiment station work. Three hours. One-half year. Seniors. *Professor Fain.*

7. **Research.** Cotton Industry "4" and "5" are prerequisite for this course. Further consideration is given to plant breeding in which opportunity is offered for the study of cytology of cotton and

the cytological aspect of cotton breeding. Text, Punnett's "Mendelism." One lecture and two laboratory periods. First half year. Seniors. *Professor Rast.*

8. **Biometry.** Students have special work in correlating characters of the cotton plant. The various lines of breeding carried on at the College afford an opportunity for a study of statistical methods. One lecture, two laboratory periods. Second half year. *Professor Rast.*

Note: The following courses will not be given unless as many as five students are registered for them: Agronomy "4," "9," "10," "11," "12," "13," "14." Cotton industry "3" and "6."

ANIMAL HUSBANDRY

MILTON P. JARNAGIN, Professor.
O. T. GOODWIN, Adjunct Professor.
R. M. GRIDLEY, Adjunct Professor.
*JAS. E. DOWNING, Pig Clubs.
*C. J. GOODELL, Assistant.
*G. L. BIGFORD, Assistant.
*F. H. DENNISS, Asst. Dairy.
*W. H. HOWELL, Asst. Dairy.

1. **Types and Market Classes of Live Stock.** Various types and grades of live stock are considered from the standpoint of adaptation to local conditions and market demands. It includes a consideration of the value of beef type in beef making, the American market classification, stock classes and grades of cattle and breeding for the market. The dairy type is considered with reference to function of milk secretion, variation in the usefulness of dairy cows, breeding for milk production and for dual-purposes.

The lard and bacon type of hogs are studied, also the market demands. The mutton type, sheep markets and breeding for market demands are given consideration. Important factors in horse production and the market demands for various classes are studied. Two one-hour recitations and one two-hour laboratory period. First term. Freshman.

1a. Special course for junior forestry course.

2. **Horses, Mules and Beef Cattle.** In this course the origin, history and development of the various breeds of horses and beef cattle are studied. The adaptation of the various breeds and types to different conditions of soil, climate and environment is considered. A comparison of draft and light horses is made, and especial emphasis is laid on the adaptation of the different types of horses and

*In Coöperation with United States Department of Agriculture.

mules to various kinds of work. Two one-hour recitations each week. First term. Sophomore year.

3. **Dairy Cattle.** In this course the origin and utility of the several breeds of dairy and dual-purpose cattle are studied. Their adaptation to the production of milk, butter, cheese, or to both milk and beef making are carefully considered. A comparison of the profits derived from the various breeds under different conditions of farming forms an important part of the instruction provided. Two one-hour recitations each week. Second term. Sophomore year.

4. **Sheep and Swine.** This course embraces a study of the history and development of the various breeds of lard and bacon hogs, both of English and American origin. Especial attention is given in this course to types of hogs suited to grazing. The history of the various breeds of sheep is taken up, and comparison of the several classes made. Special emphasis is laid on growing and marketing lambs and on classifying wool. Two one-hour recitations. Third term. Sophomore year.

5. **Stock Judging.** The students receive training in the use of the score card for various classes of live stock, and study the standards of excellence as established by the several breed associations. In addition to this, they are given practical work in comparative judging and show-ring placing of various breeding and market classes of horses, dairy and beef cattle, bacon and lard hogs and fine, medium and long wool sheep. Two two-hour laboratory periods each week. First, second and third term. Sophomore year.

6. **Live Stock Production.** This course is designed for students specializing in animal husbandry and deals especially with the production of hogs, beef cattle and horses, and includes a consideration of the adaptation of the beef breeds and specific needs. The principles of breeding, feeding and general management are studied. The laboratory work will consist of advanced live stock judging and preparation for the show or sale ring. Practical work will be given in laying out the necessary yards, paddocks and housing facilities for the various classes of live stock. Two one-hour recitations and one laboratory period. Junior year.

7. **Principles of Dairying.** This course includes the theoretical and applied side of dairy and creamery practice. A detailed study is made of the theory of milk secretion, formation and production; separation of cream by the shallow and deep setting systems, and by the use of centrifugal machines; the natural fermentations occurring in milk, their benefit and control; the manufacturing of butter; the testing of milk and its products of butter fat.

8. **Principles of Breeding.** The principles of breeding include a

consideration of selection, heredity, atavism, normal variation and fecundity. The methods of breeding studied include in-breeding, line-breeding, cross-breeding, and a review of the methods by which the best types of animals have been developed. Three one-hour recitations. Senior year.

8a. **Principles of Breeding.** This course is designed for sophomore veterinary medicine students. It deals with heredity, selection, atavism, variation and cross-breeding. A study of the pedigrees of phenomenal animals and methods and principles followed by the best breeders are studied. Three recitations per week, first term. Sophomore year.

9. **Animal Nutrition.** In this course a study of the gross anatomy and physiology of the digestive system is included. The theoretical and practical side of compounding balanced rations for maintenance, milk and butter production, fattening and growth are fully explained. Three recitations per week. Senior year.

9a. **Animal Nutrition.** This course is designed for sophomore students in veterinary medicine. It deals specifically with feeding problems and the underlying principles of animal nutrition, together with a detailed study of results obtained by experimental feeding in the different experiment stations. Second and third terms. Three recitations per week.

10. **Advanced Work in Animal Nutrition.** This course is provided for advanced students in animal husbandry. The results of feeding tests at the various experiment stations and agricultural colleges in this and other countries are reviewed. Three one-hour recitations per week. First term. Senior year.

11. **Feeding Problems.** Qualified students are allowed to assist in conducting feeding tests, keeping records and summarizing results of experimental feeding conducted by the Department of Animal Husbandry. They will also be expected to make analyses of the various feeding stuffs used and to determine the fertilizing value of the excreta obtained from various classes of farm animals. Three one-hour recitations per week. Second term.

12. **Economics of Animal Production.** In this course the various types and breeds of live-stock are considered in their relation to the utilization of various farm crops, the productiveness of the soil and the creation of wealth in general. Three-one hour recitations per week. Third term.

13. **Research Work in Animal Husbandry.** Qualified students are allowed to carry on investigations in animal husbandry under the approval and direction of the professor in charge of the department. Three hours. Senior.

14. **Dairy Manufacturing.** This course is a continuation of "7"

and deals specifically with creamery problems. It includes butter making with power machinery, ice cream manufacturing, butter judging, creamery machinery and creamery management. Two laboratories and one recitation. Second and third term. Junior.

15. **Milk Production and Dairy and Farm Management.** This course includes advanced judging of dairy cattle, the breeding, feeding and management of dairy cattle and marketing of dairy products. Two recitations and one laboratory throughout the senior year.

POULTRY HUSBANDRY.

WILLIAM S. DILTS, Instructor.

*D. J. TAYLOR, In charge of Poultry Clubs.

1. **Farm Poultry.** A general course covering the farm poultry industry, a study of breeds best suited to farm conditions, farm poultry house construction, hatching and brooding of chicks, feeding and management of the farm flock, handling of the poultry products. Two one-hour lectures or recitations and one-hour laboratory. Junior or senior. Elective. Third term.

2. **Poultry Husbandry.** Locating and laying out a poultry farm; study of the breeds of poultry; judging from the fancy and utility standpoint; poultry house construction; poultry house equipment; fields, fences and shade; principles of poultry breeding; market poultry. Two one-hour lectures or recitations and one-hour laboratory period. Must be preceded by course "1." Senior. Elective. First term.

3. **Poultry Husbandry.** A continuation of course "2." A study of the management of the breeding stock, incubators, incubation, brooders, brooding, and the care and feeding of the young chick. The student is required to operate an incubator and care for the chicks hatched until they are six weeks old. One one-hour recitation and the equivalent of two two-hour laboratory periods. Must be preceded by course "2." Senior. Elective. Second term.

4. **Poultry Husbandry.** A continuation of course "2" and "3." This course takes up the subjects of poultry feeds and feeding, management of the laying stock, care of the growing stock, production of market poultry, grading and marketing the poultry products, records, accounts, and the diseases of poultry. The student is required to care for a pen of birds and keep accurate record of the eggs produced, food consumed, and general conditions; with accounts showing profit or loss. One one-hour lecture or recitation and the equivalent of two 2-hour laboratory periods. Must be preceded by course "3." Senior elective. Third term.

Note: Poultry husbandry courses "2," "3," and "4" are offered only when elected by not less than three students.

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*In coöperation with U. S. D. A.

HORTICULTURE

T. H. McHATTON, Professor.
J. W. FIROR, Junior Professor
F. W. CRYSLER, Instructor.
ELMO RAGSDALE, Instructor.
C. N. KEYSER, Tutor.

1. **Elements of Horticulture: Fruit Growing** A general study of location, site, frost, planting, varieties, orchard tillage and management. Three lectures per week. Required of freshmen in fall term.

2. **Pruning and Propagation.** A course in grafting, budding and other methods of propagation; also a study of pruning with its practice and effect. A few periods are devoted to a study of varieties both for the orchard and truck garden. Laboratory course of three periods per week. Required of freshmen in winter term.

3. **Elements of Horticulture: Truck Gardening.** A general study of the main truck crops as to planting, tillage and handling, with the addition of a study of hot-beds and their management. Three laboratory periods per week. Required of freshmen in spring term.

4. **Small Fruits.** A study of the various small fruits of interest to the horticulturist. Three lectures a week for six weeks. Book, "Bush-Fruits," by Card. **Fruit Harvesting, Storing and Marketing.** Three lectures a week for six weeks. Book. "Fruit Harvesting, Storing and Marketing," by Waugh. Required of juniors or seniors.

5. **Pomology and Garden Seeds.** A course in the testing of seeds and a study of the several species of fruit with their pomological classification. Book, "Systematic Pomology," Waugh, supplemented by lectures. A laboratory course of three periods per week, to be carried with course "4." Fall term. Junior or senior.

6. **Greenhouse Management and Floriculture.** A study of the various flower crops, forcing crops and management of a greenhouse. Reference books, "Greenhouse Management," Taft; "Principles of Floriculture," White, and "Practical Floriculture," Peter Henderson. Three lectures per week. Junior or senior.

7. **Greenhouse Construction and Management.** A study of the different types of greenhouses and heating, construction, etc. In connection with this course, trips to florists and nurseries are taken to study the plants and greenhouses. A ground plan, end elevation, bill of material and description of heating plant used in a greenhouse required of the students at the end of this course. Actual work in greenhouse management is given. Reference book:

"Greenhouse Construction," Taft. A laboratory course of three periods per week. Winter term. Junior or senior.

8. (Course dropped).

9. **Spraying.** Lectures on the history and chemistry of spraying. Practice in the making and application of spray mixtures accompanied by a study of nozzle and machinery. Three laboratory periods per week. Junior or senior.

10. **Landscape Gardening.** A study of the various schools of landscape architecture and the plants used in producing the various effects. A problem in landscaping is given each student and a drawing showing the solution required. Three lectures per week. Spring term. Junior or senior.

11. **Advanced Pomology.** A course of three lectures per week throughout the year open to seniors. A detailed study of the practical and scientific phases of fruit growing form the basis of this course and the work is supplemented by numerous references.

12. **Thesis.** A subject relative to any of the following courses, "11," "14," "15," or "16" will be assigned to the student for study. At the end of the course a thesis, stating the problem, results obtained, etc., is required of the student. A course of three laboratory periods per week throughout the year. Course "12" must be taken by seniors with major in horticulture.

13. **Economic Entomology.** A course in practical entomology designed especially for use upon the farm. Special attention is paid to the identification of insects and a collection is required of the student at the end of the work. Three hours per week. Last half of the winter term, and all of the spring term. Junior or senior.

14. **Advanced Olericulture.** A course of three lectures per week throughout the year, open to seniors. A practical and scientific study of the problems of vegetable culture, both out doors and under glass. Work supplemented with numerous references.

15. **Advanced Floriculture.** Three lectures per week throughout the year, open to seniors. A study of the more practical and scientific problems of flower growing both under glass and outdoors. Supplemented with numerous references.

16. **Advanced Landscape Gardening.** Three lectures per week throughout the year, open to seniors. Landscape problems of homes, cities, parks, schools, public buildings, etc., receive attention. Work supplemented with numerous problems and references.

Note. The professor in charge will not be required to give courses "11," "14," "15" nor "16" to less than five students, unless the whole senior class in horticulture is less than five, in which case he can put all the members of the class into the course most acceptable to them.

AGRICULTURAL ENGINEERING

LEROY C. HART, Professor.
E. G. WELCH, Instructor.
GUY R. JONES, Instructor.

1. **Shop Work.** a. **Wood Work.** This course is designed for the instruction of the student in the use, care and sharpening of all wood-working tools. A carefully planned series of exercises are offered. These exercises bring into use all tools that will be helpful to the student in after life. An advanced course in wood work planned for students having had the preliminary work, will be given. This course will consist of the design and building of furniture and other articles for the home. Required of freshmen.

b. **Forge Work.** This work is designed to familiarize the student with the building and care of coal fires, the manufacture of iron and steel, and to familiarize him with the working and handling of iron and steel. Tool-making and tempering will be given. Required of freshmen.

2. **Drawing.** Sufficient time will be devoted to free-hand drawing to enable the student to execute readily the necessary drawings in the various laboratory courses. Instrumental drawing will then be taken up so that the student may become familiar with the use of the instruments and be able to execute rapidly and neatly any drawing of this kind that will be required. Freshman year.

2a. **Forest Drawing.** Special drill in drawing topographical maps, using all topographical signs employed in topographic survey. This course is for forestry students, but may be elected by advanced students. Prerequisite agricultural engineering "2."

3. **Farm Machinery Judging.** A study will be made of the construction and use of the various farm machines, such as are used for preparing, planting, cultivating, harvesting, storing and for home and miscellaneous machinery. Each group will be taken up separately, studied and judged. Required of freshmen.

3a. **Dynamite.** As dynamite has come to be of considerable importance in agriculture, a short review of its manufacture and use will be given in connection with agricultural engineering "3."

4. **Farm Motors.** Considerable time will be given to study and operation of the gasoline engine, the steam engine and the electric motor. This course is taken up in connection with agricultural engineering "3." Required of freshmen.

5. **Farm Surveying.** This work will consist of the study and the use of farm levels and compass, and plane table, or terracing, leveling and the survey of farm lands, and also their use in road building. Each student will be required to make a thorough map of a plot of ground and compute its area. Required of freshmen.

5a. **Forest Surveying.** An advanced course is offered in the use of the compass, level, plane table and transit, with special attention to the different uses of these instruments in topographic and reconnoissance work. The work will consist of a hasty survey of a plot of ground. Then a more careful survey will be made as a check upon the first to illustrate the difference in accuracy. This will enable the student to determine the method to be used on all future work. Work required in the sophomore year for all forest students, but may be elected by other students who have had agricultural engineering "5," or its equivalent.

5b. **Saw Mill Machinery and Construction.** This course takes up the study of saw mill and machinery, and deals with the framing of saw mill buildings and other structures using built-up members. Forest students. Sophomore. Prerequisite agricultural engineering "2."

6. **Fencing.** This will include a study of the strength and adaptability of various materials for fence construction. The principles of gate construction, and bracing at the corners and at sufficient points according to the condition of the ground. Junior.

7. **Farm Building.** This course consists of the study and design of farm buildings, starting with the simple and gradually working up to the most complicated. Plans are drawn and from these, the bill of material and an estimate of the cost of the completed structure are made. Attention is given to farm convenience and sanitation. Considerable time will be spent in studying problems of lighting, heating, water supply and sewerage disposal for the farm home. Agricultural engineering "2," or its equivalent, are prerequisite to this course. Juniors. Fall and winter term. One lecture and two laboratory periods.

7a. **Wood Physics.** A study of the strength of wood under different conditions and shapes, also the physical effect of moisture, heat and preservatives upon its strength is taken up. Required of forest students. Six hours, second term. Junior.

7c. **Wood Preservation.** The primary cause of decay; factors governing the lasting powers of different species; the preservation of woods by the application of paints and oils to the surface; the impregnation with creosote and other wood preservatives; the commercial method of impregnation; description of preserving plants and the fire proofing of timber. Junior.

8. **Concrete Construction.** A study will be made of the principles of concrete construction, also the material, forms, mixing, placing and tamping. Their application to farm and forest conditions and the various uses to which concrete has been put in late years are pointed out. Special attention is given to its use for residences,

barns and its application in forestry. The construction of fence posts from concrete is taken up. Optional for seniors. Agricultural engineering "2," "6" and "7" prerequisite, or their equivalent.

8a. **Concrete Testing.** An advanced course in the testing of cements and concretes under different conditions, shapes, aggregates and reinforcing is given. One lecture and two laboratory periods.

9. **Road Building.** Practice work is given in locating roads at the most desirable grades with special attention to drainage. Considerable time will be devoted to road materials, and in taking tests of the various kinds. Optional for seniors. Agricultural engineering "5" prerequisite to this course.

Note. Number "8" and number "9" will constitute half a year's work.

10. **Farm Buildings.** An advanced course in the design, location and construction of all farm buildings. The stresses in different members of a design are carefully figured. Models are built and tested to verify the results obtained. Government bulletins and parallel reading "Farm Buildings," Sanders Publishing Co. One lecture and two laboratory periods a week throughout the year.

11. **Farm Machinery.** An advanced course in the elements of machinery. The measurement and transmission of power. The development, use, construction and repair of all farm machinery. Text, "Farm Machinery and Farm Motors," parallel reading, prerequisite farm machinery "3."

12. **Farm Motors.** The sources of power for agricultural purposes. Tread and sweep powers. Steam, gasoline, air and oil engines and tractors, windmills and electric motors, as far as applicable to agricultural purposes. Texts, "Power and the Plow," "Gasoline Engine on the Farm." Parallel reading prerequisite agricultural engineering "4." "11" and "12" constitute a year's work. One lecture and two laboratory periods throughout the year.

14. **Farm Sanitation.** An advanced course in the lighting, heating, ventillation, plumbing and drainage of farm buildings, also in methods employed for sewage disposals. Text, "Rural Hygiene," by Ogden. "Practical Methods of Sewage Disposal," Ogden and Cleveland. "Domestic Water Supplies for the Farm," Fuller. Parallel readings. Government bulletins. Prerequisite, agricultural engineering "7." One lecture and two laboratory periods half the year.

15. **Drainage and Irrigation Engineering.** Drainage of farm lands, both by the open ditch and tile drainage. Methods used in making the preliminary surveys and estimates. The finished survey and report. Drainage laws and assessments. Irrigation methods in use. The application and measurement of water. Texts, "Irrigation and

Drainage," by King. "Practical Farm Drainage," and "Engineering for Land Drainage," by Elliott. Government bulletins and parallel reading. Prerequisite, agricultural engineering "5," one lecture and two laboratory periods half year.

16. **Road Building.** A continuation of agricultural engineering "9." The economic value of good roads is taken up in connection with a more detailed study of the problem. The location, drainage, road material, construction and road machinery are studied. Highway bridges and culverts are taken up. Text, "American Highways," Shaler. Government bulletins and parallel reading. Prerequisite agricultural engineering "5," one lecture and two laboratory periods half the year.

17. **Agricultural Surveying.** An advanced course in use of the usual surveying instruments, with especial attention to detail and accuracy. Text, Pence and Ketchum's "Surveying Manual," and "Land Surveying," Hodgman. Prerequisite, agricultural engineering "5." One lecture and two laboratory periods throughout the year.

AGRICULTURAL CHEMISTRY

W. A. WORSHAM, Jr., Professor.
L. M. CARTER, Junior Professor of Soil Chemistry.
D. D. LONG, Junior Professor in Charge Soil Survey.
M. W. LOWRY, Adjunct Professor of Soil Chemistry.

1. **Organic Chemistry.** This course consists of the study of the classification and relation of the carbon compounds, and the preparation of the simpler and more important ones.

Stress is laid on those compounds relating most directly to agriculture, such as the organic compounds in the soil, feeds, fertilizers and organic adulterants.

Students taking this course must have had elementary Chemistry "1," or Inorganic Chemistry "2," including work in laboratory. Norris "Organic Chemistry" will be used as a basis of this work. Two hours of lectures and recitations and one laboratory period. Optional for juniors and seniors.

2. **Qualitative Analysis.** In this course a study is made of the characteristic properties and reactions of the common metals and acid radicals. The principles involved in the separation of the groups and the individual metals of the respective groups are studied in the laboratory. By systematic work with known substances and then with unknown substances the student will be able to familiarize himself with processes employed in qualitative analysis. The course is planned to enable the student to determine the composition of ordinary substances especially those that are of

most importance in agriculture. Two lecture and seven laboratory periods during the sophomore year.

2b. Same as course "2," except students not specializing in chemistry take two laboratory periods instead of seven. Required of sophomores.

3. **Quantitative Analysis.** The object of this course is to prepare the student for special work in agricultural chemistry as well as to teach the method of quantitative analysis.

The methods of both gravimetric and volumetric analysis will be treated in lectures and the practice carried out in the laboratory. Substances of known percentage composition will first be analyzed and then substances of unknown composition, including the simpler agricultural products. Texts: "Elementary Quantitative Chemical Analysis," Lincoln and Walton. Reference books, "Quantitative Analysis," by Treadwell, Olsen and Fresenius.

3a. Same as course "3," except that students not specializing in chemistry, have one hour of lectures and recitations and two laboratory periods. Optional for juniors and seniors.

4. **Advanced Quantitative Analysis.** The basis of the work in this course will be the study of the methods employed in soil investigations, the analysis of soils, fertilizers, feeds, waters, etc. Some latitude is allowed the student as to the substances to be analyzed. Students taking this course must have had agricultural chemistry "3." No text-books required. Work for laboratory will be outlined and standard references given.

Two hours of lectures and recitations and seven laboratory periods for three terms during senior year.

4b. Same as course "4," except that students not specializing in chemistry have one hour of lectures and recitations and two laboratory periods. Optional for seniors.

5. **Chemistry of Forest By-products.** This course consists of the detailed study of the chemical by-products of the forest, destructive and steam distillation, the mechanical and chemical processes of paper manufacture from wood, the production of turpentine and rosin, the production of wood alcohol, acetic acid, creosote, and the possibility of further utilization of sawmill wasted. Six hours during third term of junior year. Required of forestry students.

Fees. No laboratory fees are charged for any of the courses offered in this department.

A deposit of $5.00 will be required for each laboratory course to cover breakage of apparatus. If any of this amount is left it will be returned to the student at the end of the year.

VETERINARY SCIENCE

W. M. BURSON, Professor.
L. M. RODERICK, Instructor.

3. Consists of lectures and demonstrations covering briefly the anatomy and physiology of the animals of the farm. Special attention is given to the anatomy of the horse and cow and references to variations in other species are made. Elective as minor for juniors in agriculture. First, second, and third terms. Two hours per week.

4. Consists of laboratory work in the above subject. One two-hour laboratory per week entire year.

5. Consists of lectures on pathology, parasitology, diseases of farm animals, obstetrics and lameness, prerequisite, courses "3" and "4." Elective as minor for seniors in agriculture. First, second, and third terms. Two hours per week.

6. Consists of demonstrations and clinics at the veterinary hospital. One laboratory period per week entire year.

7. **General Bacteriology.** This course is designed to give the student a conception of the activities of bacteria. It treats of the biological, physiological, and morphological features of bacteria as related to agriculture. Laboratory work consists of the preparation of media, the making of cultures, straining methods and the study of the physiological activities of bacteria. Two hours of lectures and recitation and one laboratory period, first half year. Required of juniors in agriculture.

Courses for Veterinary Degree

Anatomy

Anatomy being the basic subject of medical science, must receive careful attention at the hands of the student. The subject is taken up in a systematic manner and is taught by means of lectures, demonstrations, drawings and dissections.

The subject embraces the following subdivisions:

Osteology, the study of bones.

Arthrology, the study of joints, ligaments and synovial structures.

Myology, the study of the muscular system.

Splanchology, the study of the viscera.

Angiology, the study of the blood, circulatory and lymphatic system.

Neurology and Esthesiology, the study of the nervous system and senses.

Comparative Anatomy, the study of corresponding structures in the various species of domestic animals.

COURSES IN ANATOMY.

Anatomy 1. Osteology. Consists in the study of the bones of the horse. Drawings are made by each student in order that he may obtain a good mental picture of their shapes and characteristic parts. Three lectures and two two-hour laboratory periods per week. Texts: "Veterinary Anatomy," Sisson. Freshmen. First term.

Anatomy 2. Arthrology and Myology. The student is required to make a careful dissection of the muscles of head, neck, body and limbs of the horse, learning their shape, size, location and relation to other structures, the ligaments and other structures of joints are studied. Three lectures and four two-hour laboratory periods per week. Prerequisite, anatomy "1." Freshman. Second term.

Anatomy 3. Splanchnology and Angiology. In this course the internal organs and blood vessels are located and studied. Three lectures and three two-hour laboratory periods per week. Prerequisite anatomy "1" and "2." Freshman. Third term.

Anatomy 4. Neurology and Esthesiology. Study of the nervous system and senses. Three lectures and two two-hour laboratory periods per week. Prerequisite anatomy "1," "2," "3." Sophomore. First term.

Anatomy 5. Comparative Anatomy. The work consists of lectures and laboratory work and calls attention to the variations in form and structure of corresponding organs and parts of the various species of domestic animals. Three lectures and four two-hour laboratory periods per week. Prerequisite anatomy "1," "2," "3," and "4." Sophomore. Second term.

Anatomy 6. Surgical Anatomy. A careful and detailed study of those parts of the body that are commonly the sites of surgical operations. Three lectures and three two-hour laboratory periods per week. Prerequisite anatomy "1," to "5." Sophomore. Third term.

Anatomy 7. Histology. A study of the cellular structures of animal tissues. Students are required to prepare and mount specimens of the various tissues, study them under the microscope and to be able to identify specimens of all tissues. One lecture and two two-hour laboratory periods per week. Freshman. First and second terms.

Anatomy 8. Embryology. A study of reproduction and the development of the embryo. Two lectures and one two-hour laboratory period per week. Prerequisite anatomy "1," "2" and "3," and physiology "1." Sophomore. First term.

Veterinary Physiology

1. A study of the normal functions of the animal body. The course is intended to give the student a thorough understanding of the vital processes of respiration, circulation, digestion, assimilation, excretion, secretion, ennervation and locomotion, in order that he may appreciate the benefits to be derived from proper hygienic conditions, the selection of and proper uses of feed stuffs and proper methods of handling live stock.

The course consists of lectures, demonstrations and laboratory work, charts, models and other appliances are used and experiments on animals will be conducted in order to demonstrate physiological processes. Two lectures and one two-hour laboratory period per week. Text: "A Manual of Veterinary Physiology," by F. Smith. Freshman. Entire year.

Physiology 2. Physiological Chemistry and Animal Locomotion. A study of animal secretions and excretions. Examinations and analyses constitute the major part of the work. Animal locomotion is studied in order to familiarize the student with normal movements and action of the body and limbs so that he may become adept in recognizing departures from normal motion as the result of injury or disease. Prerequisite physiology "1" and anatomy "2" and "3." Lectures and laboratory work. Sophomore. Three hours per week.

Materia Medica

1. An introduction to the study of materia medica and therapeutics, taking up foundational work in these subjects. The course consists of studies in weights and measures, the origin, preparation and actions of drugs, methods of administration, absorption and elimination. The more commonly used and least dangerous drugs only are considered. Two lectures and one two-hour laboratory period per week. Sophomore. Third term.

BACTERIOLOGY.

1. **General Bacteriology.** This course is designed to give the student a conception of the activities of bacteria. It treats of the biological, physiological and morphological features of bacteria. Laboratory work consists of the preparation of media, the making of cultures, staining methods and the study of the physiological activities of bacteria. Two hours of lectures and recitation and one laboratory period. First half year. Sophomore.

2. **Pathogenic Bacteriology.** A knowledge of general bacteriology is a prerequisite. This consists of a study of pathogenic bacteria, e.g. pus cocci, tuberculosis, glanders, anthrax and tetanus.

The work consists of the observation of cultural characteristics and the study of the pathogenic significance of the organisms; the methods of bacteriological diagnosis, such as isolation and agglutination and the means of treatment by the use of vaccines and anti-serum. Two hours of lectures and recitations and one laboratory period. Second half year. Sophomore.

Note: For description of courses in animal husbandry, biology, chemistry and English, see under the various departments mentioned.

Note: In addition to the work outlined above, it is recommended that students who feel able to carry the work take up German because many of the best books on veterinary subjects are the works of German scientists. The student who is able to read German scientific literature will be better able to keep up with the advance line in veterinary medicine.

FORESTRY

JAS. B. BERRY, Professor.

1. **Forest Policy.** The development of policy as reflected in forest legislation. A comprehensive study of the forest laws of all countries, special stress being placed upon those in which the science of forestry has reached a high degree of perfection. A consideration of the forest legislation of the various states. The development of a policy.

Text, lecture, collateral reading. Three hours, third term.

2. **Farm Forestry** (Short course for one year students). General consideration of the farm woodlot. Nursery practice practicable on farm, field planting, improvement cuttings, measuring forest product, seasoning and preservative treatment of farm timbers.

Lecture, collateral reading. One laboratory period, three hours, third term.

3. **Farm Forestry.** Forestry as an adjunct to agriculture. Forest influences, nursery practice, field planting thinnings and improvement cuttings, protection, estimating timber, wood measurements, seasoning and preservative treatment of wood, financial results.

Text, lecture, collateral reading. One laboratory period, three hours, second semester.

4. **Dendrology.** Comprehensive study of the forest trees of North America. Taxonomy, botanical and silvical characteristics, range, winter and summer identification. Field work in the College arboretum.

Text, lectures, reports, collateral reading. Two laboratory periods, three hours, entire year.

5. **Silviculture.** First term. Forest ecology, factors of site, quality of site, forest types, silvical regions of North America.

Second term. Silvicultural systems of management, selection of a system, limitations of systems.

Third term. Seedling and planting, artificial regeneration, nursery practice, seed identification, seed testing, storage.

Text, lecture, collateral reading. One laboratory period, three hours, entire year.

6. **Forest Protection.** Methods of preventing, fighting and controlling forest fire. Location and use of lookout-towers, telephones, wireless and heliographs. Caches for tools and supplies. Maps and protection plans. Creating public sentiment and organizing local residents.

Lecture, collateral reading. Three hours, first term.

7. **Forest Mensuration.** Part 1, freshman summer camp. Units of measurement, use of volume tables, estimating standing timber, log rules, mill-scale studies.

Part 2, sophomore summer camp. Formation of volume tables, growth tables, yield tables. Advanced work in estimating standing timber.

Text, lecture and field work, four credits.

8. **Forest Management.** First term. Forest organization. Consideration of the normal forest, volume of growing stock under different systems of silvicultural management. Determining the felling budget. Division of the forest area.

Second term. Forest finance. Value of forest property. Value based on productive capacity. Forest accounting. Financial rotation. Problems in forest finance. Taxation of forest property.

Third term. Working plans. Provisions of the plan. Data necessary for the construction of a plan. Detailed study of a plan for a highly specialized forest. Preliminary working plans. Each student is required to make a detailed plan for a small forest area, collecting the necessary data himself, drafting his plan and placing it in final form for filing in the school library.

Text, lecture, field work. Six laboratory periods, six credits, entire year.

9. **Forest Utilization.** Systematic study of logging operations in different sections of North America; character of tools used; wood transportation; comparison of costs of the various operations; labor conditions; camp, board and sanitation. Milling and manufacture; costs, markets, grading. Specialized industries; wood pulp, handles, matches, etc. Seasoning of lumber; treatment to prevent stain.

A report on a specific operation is required. This will be according to outline and will include the woods operations, transport, milling, manufacture, utilization of waste, marketing. Each student is required to spend not less than ten days in a logging camp and

around the mill in the collection of data. Text, lecture, collateral reading, field work. Three credits entire year.

10. **Forest History.** An analysis of the economic conditions which have resulted in the development of forestry. The influence of form of government and property rights. Text, lecture, collateral reading. Three credits, first term.

11. **Forest Economics.** The relation existing between the practice of forestry, industry, and the prosperity of a country. Taxation. Reports upon the economic importance of specific industries will be a feature of the course. Text, lecture, reports, collateral reading. Three credits, second term.

12. **General Forestry.** Elementary forest field work in dendrology surveying, logging, camping and packing. Training in the work of a Forest Service guard. Text, lecture, field work. Freshman, summer camp, two months. Four credits.

13. **Dendropathology.** Systematic study of the important tree diseases; means of identification; methods of control. Text, lecture, collateral reading. Two laboratory periods, three credits, second term.

14. **Forest Administration.** Contracts, agency, appropriation of water for power and irrigation, affidavits, bonds, commercial paper. The work will be considered from the standpoint of the Forest Service. Text, lecture, collateral reading. Three credits, third term.

15. **Wood Technology.** Structure of wood tissue; classification of fibers; identification of woods, generic and specific. Both microscopic and macroscopic identification will be considered. Each student is required to make a series of microscopic slides for use in the course. Text, lecture, reports, collateral reading. Four laboratory periods. Two credits, first term.

16. **Field Work.** Field work in forest surveying, silviculture, forest soils, logging engineering, tree diseases. This work will be under the supervision of the head of department concerned. Lecture and field work. Sophomore, summer camp, two months. Four credits.

17. **Seminar.** Systematic review, special investigative studies, research. To be considered in connection with forest "18." Three hours, entire year. Three credits.

18. **Thesis.** The subject of the thesis is selected in consultation with the head of the school and may be along lines of original research or simply investigative. For students desiring to enter private work it will be along the line of their specialization. The thesis must come up to certain specifications and will be filed in the Forest School library. Three credits.

19. **Principles of Forestry.** Forest Influences. Relation of for-

ests to agriculture, navigation, industry. Results of general deforestation. Products of the forest. Forest areas of the world. The movement for the conservation of natural resources. The profession of forestry. Lecture, collateral reading. Three hours per week, third term. One credit.

MASTER OF SCIENCE IN AGRICULTURE

A graduate course in agriculture is offered leading to the degree of Master of Science in Agriculture. A reputable baccalaureate degree is a prerequisite. The major and at least one minor must be elected from courses offered in the College of Agriculture. One minor may be chosen from graduate courses offered in other departments of the University. The choice of courses is subject to the approval of the professor in charge of the department in which the major course is selected.

Graduate work is offered in five courses by the College of Agriculture, in agronomy, agricultural chemistry, horticulture, animal husbandry, veterinary medicine.

In agronomy stress is laid upon soil types of Georgia, improvement of seed corn, physical properties of soils, fertilizers.

In agricultural chemistry, special attention is given to agricultural chemical analysis, with select readings and laboratory work.

Graduate work in horticulture will be given in advanced pomology, with select readings upon plant breeding, origin of species, etc.

Animal husbandry graduate work will take up feeding tests with study of chemical and physiological changes in animal life.

Graduate work in veterinary science consists of theory and practice of veterinary medicine, clinics, lectures and laboratory work in bacteriology.

Graduate work can be taken during the summer as well as during the regular University terms.

For full particulars about graduate work, the candidate should write to College of Agriculture for special bulletin announcing the Graduate School.

GENERAL COURSES

MATHEMATICS.

C. M. SNELLING, Professor.
R. P. STEPHENS, Associate Professor.
R. S. POND, Adjunct Professor.
W. W. WEBER, Fellow.

1. **Trigonometry.** A course in plane and spherical trigonometry.

Three hours per week for the first two terms. Text: Hun & MacInnes. *Professors Snelling, Stephens* and *Pond.*

2. **Graphical Algebra.** This includes a study of coordinates, the plotting of curves, and the derivation of the equations of the straight line and the circle. Three hours per week for the third term. *Professors Snelling, Stephens* and *Pond.*

3. **Analysis.** The work of course "2" is continued by the study of the equations of the conics and by an introduction to calculus. Three hours per week for the first half year. Text: Smith and Granville's. *Professors Stephens* and *Pond.*

4. **Advanced Algebra.** The following topics are treated: mathematical induction, binomial theorem, complex numbers, determinants, theory of equations, partial fractions, series, and logarithms. Three hours per week for the second half year. *Professors Stephens* and *Pond.*

CIVIL ENGINEERING.

C. M. STRAHAN, Professor.
E. L. GRIGGS, Associate Professor.
S. B. SLACK, Adjunct Professor.
H. E. NEWTON, Student Assistant.

A-1. **Elementary Surveying.** A course covering the use, care, and adjustment of surveying instruments, methods of surveying by chain alone, by compass, and by transit; the methods of platting and computing areas and volumes; the variation of the magnetic needle; problems in parting off and dividing lands; the use of the Y level and precise leveling; plane table and stadia surveying, and the use of the solar transit. Three hours per week. Texts, Breed and Hosmer's "Surveying." *Professor Griggs.*

B-1. **Materials of Construction.** A course of lectures and laboratory work covering the occurrence, preparation, and manufacture of the important structural materials, to-wit: lumber, its seasoning, inspection and preservative treatment; tone, natural and artificial, including brick, terra cotta, cements, concrete blocks, etc.; the metals, including cast iron, wrought iron, steel, copper, tin, lead, zinc, aluminum and alloys as used by engineers; uniting materials, covering limes, mortars, cements, bituminous binders, joinery, riveting, etc. First and second terms. The third term is given to foundations and masonry structures, the course being based on Baker's Masonry Construction. Three hours per week. *Professor Strahan.*

B-2. **Railroad Engineering.** A course covering reconnoissance, preliminary and location surveys, curves, spirals, switches, etc., cross-sectioning, computations and estimates, railroad economics and the various other problems involved in the complete engineer-

ing of railways. Three hours per week. Text: Allen's "Railroad Curves and Earthwork." Lectures. *Professor Strahan.*

B-3. **Highway Engineering.** A course of lectures, laboratory and field problems covering the surveys, location, drainage, grading and surfacing of public highways and city streets. The preparation of maps, profiles and estimates. Paving methods and specifications. Road finances, equipment and labor. Three hours per week. *Professor Slack.*

PHYSICS.

L. L. HENDREN, Professor.
C. R. FOUNTAIN, Adjunct Professor.
B. L. SEGALL, Tutor.

The following courses are offered for agricultural students. For other courses see the A. and M. College announcements.

2. **Elementary Physics.** A college course covering the elementary principles. In this course especial emphasis is laid upon the application of the principles of physics to practical life. Three hours per week recitation work and two hours per week laboratory work throughout the year. Required of all sophomore B. S. agricultural students and Freshmen B. S. forestry students.

3. **Physical Measurements.** This course is offered as an extra course for students taking physics "2" who desire to do more individual laboratory work than is required in the regular course. Two hours per week in the laboratory.

CHEMISTRY.

H. C. WHITE, Professor.
H. V. BLACK, Associate Professor.
W. F. CLARKE, Instructor.

The following courses are offered:

1. **Elementary Chemistry.** Three hours per week of lectures and recitations and two laboratory periods, for three terms. Text: McPherson and Henderson, "Elementary Chemistry."

2. **Inorganic Chemistry; College Course.** Three hours per week of lectures and recitations and two laboratory periods, for three terms. Text: Noyes' "Text Book of Chemistry."

BIOLOGY.

JOHN P. CAMPBELL, Professor.
W. M. WATSON, Student Assistant.

3. **Introductory Animal Biology.** The object of this course is to lay a broad foundation from which the student may logically proceed to any more specialized line of animal study. Attention is

given to the morphology of several of the invertebrate phyla in proportion to their biological significance, and in addition the student is introduced to the study of protoplasm, metabolism, growth, reproduction, sex, heredity, etc. Three hours weekly with one laboratory period.

4. **Vertebrate Zoölogy.** This course is conducted with the same general purpose as course "3." Sufficient attention is given to anatomy to provide for exactness, but the attempt is made to correlate structure and function with the animal's place in nature. The first term is devoted to the protochordata, fishes, and amphibia; the second to reptiles and birds.

5. **Zoölogy of Mammals.** The mammals are given special extended treatment in this course, which occupies the third term. Extensive dissections are made, but in addition all of the orders and many of the families are taken up from the view-point of adaptation to environment, distribution, etc. In addition, considerable attention is given to the study of extinct mammals.

6. **Comparative Anatomy of Vertebrates.** In this course, which occupies the first and second terms, attention is given to the broader side of anatomy, including embryology and histology. Special attention is given to the comparative study of skeletons, teeth, muscular and nervous systems, but the other systems are taken up as fully as possible. The museum material, on which this course is based, has recently been considerably enlarged.

7. **Genetics.** This course consists of lectures, laboratory work and parallel reading. Attention is given to the broad biological features of reproduction, with especial reference to heredity, and final consideration of eugenics. Third term.

BOTANY.

J. M. READE, Professor.
H. W. HARVEY, Assistant.
L. PESSIN, Assistant.
C. L. VEATCH, Assistant.

A. **Plant Life.** This is a brief course arranged for the one-year class. It is designed to be introductory to practical work in horticulture and agronomy.

1. **Agricultural Botany.** This is the beginning college course. It has been arranged especially for students in the B.S.A. and B.S.F. curricula and with a view to their particular needs. Text: "Botany for Schools"—Atkinson. Three recitations per week.

1a. **Laboratory Course.** This is required of students taking Botany "1." The first and second terms are devoted to exercises on the structure and nutrition of plants and the third term to field

studies in systematic botany using Gray's Manual, 7th Edition. For courses "1" and "1a" together four hours of college credit are given.

9. **Physiology.** A laboratory study of nutrition, respiration, fermentation, growth and irritability. Text: "A Laboratory Course in Plant Physiology"—Ganung. Three laboratory periods per week.

11. **Genetics.** This is the study of heredity. The course is recommended as a foundation for plant and animal breeding. The following topics are taken up in the order given. Variation; theories of adaptation; heritability of experience; pure lines; Mendelism; heredity of sex; non-segregating characters; species, crosses or hybreds; mutation; graft hybreds; material basis of heredity. Text: "Mendel's Principles of Heredity"—Bateson. Three lectures per week.

ENGLISH.

R. E. PARK, Professor.
R. P. WALKER, Adjunct Professor.
H. HULSEY, Tutor.
S. V. SANFORD, Professor of English Language.

A. **The Elements of English.** This course emphasizes business correspondence, a review of grammar, composition writing and the reading of selected classics. Required of one-year students in agriculture. Three hours a week. *Mr. Hulsey.*

1. **Rhetoric.** (a) A study of the fundamental principles of rhetoric, (b) their application to the problems of composition and (c) their application to the interpretation of literature. Weekly themes. Required of freshmen. Three hours a week. *Professor Park, Professor Sanford, Mr. Walker, Mr. Hulsey.*

2. **English Literature.** The principles of literary criticism and the practical application of these principles to masterpieces studied with reference to (a) elements of literature, (b) species of literature, (c) historical development. The object of this course is to give to the student a general view of the history and development of English literature, with detailed knowledge of certain periods. Throughout the course much attention will be devoted to the writing of essays as a means of training the student to appreciate and to express his appreciation of the literature studied. Required of Sophomores. Three hours a week. *Professor Park, Mr. Walker,*

ROMANCE LANGUAGES.

J. LUSTRAT, Professor.
W. T. TURK, Instructor.

1. **French 1** is a course for beginners who are conditioned in French and wish to substitute both French and German for Greek,

and also for agricultural and engineering students who do not offer language for entrance conditions.

The course consists of careful drill in pronunciation, the rudiments of grammar, the study of regular and irregular verbs, the inflection and use of personal pronouns, the rudiments of syntax, dictation, easy exercises of translation from English into French, conversation and the reading of about 275 duodecimo pages of easy prose. Three hours per week.

2. **French 2** is the continuation of course "1." It will comprise the reading of about 400 pages of easy modern prose, constant practice in translation into French of easy English prose, dictation, short drill in grammar and syntax, full study of all irregular verbs, and conversation. Three hours per week.

GERMAN.

JOHN MORRIS, Professor.
M. D. DuBOSE, Adjunct Professor.

1. **German 1** is a course for beginners who are conditioned in German and wish to substitute both German and French for Greek in the A. B. degree. This course comprises grammar and reader, with daily oral and written exercises. Three hours per week. *Professor Morris* and *Adjunct Professor DuBose.*

2. **German 2** continues the work of German "1," and completes the requirement for entrance. The course consists of grammar, translation of simple texts, and exercises in both speaking and writing German. Three hours per week. *Professor Morris* and *Adjunct Professor DuBose.*

HISTORY AND POLITICAL SCIENCE.

J. H. T. McPHERSON, Professor.
W. O. PAYNE, Associate Professor.
R. P. BROOKS, Associate Professor.

2*a*. **Economic History of the United States.** This course will trace the development of American agriculture and industry from colonial times to the present. Emphasis will be put upon topics of special interest to the South. Three hours per week, second half year. Required of freshmen in the School of Commerce, and optional in conjunction with economics "1," for sophomores in the Agricultural College. *Professor Brooks.*

4*a*. **Economic History of England.** A survey of English history with special emphasis upon the development of agricultural, commercial, and industrial life and conditions. This course will be extended to include a similar study of continental Europe during the eighteenth and nineteenth centuries. Three hours a week throughout the year. Optional for sophomores in Bachelor of Science in

Agriculture; required of sophomores in Bachelor of Science in Commerce. *Associate Professor Payne.*

ECONOMICS.

WM. A. SHELTON, Associate Professor.

1. **Economic Geography.** A comparative study of the present status of industry, commerce and industrial training of the principal countries of the world. The chief products and industries, the commercial and industrial centers, the distribution of population, the use and conservation of natural resources, and international trade are some of the topics considered. Open to freshmen and sophomores. First or second half of year.

3 (or 5). **Elementary Economics.** The laws of production, price, value, rent, interest and wages are applied to problems of business organization and public control. Some of these problems are money, credit, business cycles, banking, industrial corporations, railways, international trade and tariff policy, taxation and public expenditures, and labor and economic progress. This course is open to sophomores and upper classmen and should be taken prior to other courses in economics except economics "1." On the approval of the professor, however, advanced courses may be taken contemporaneously with this course but not prior to it. Three hours a week throughout the year.

6. **Money Banking and Business Cycles.** Attention is given to the rising prices of the present epoch, the organization and functions of banks, the federal reserve banks, credit (especially rural credit associations), and business cycles and business barometers. Three hours a week. First two terms.

7. **Industrial Corporations.** The economics of production through corporate organization, the forms of business, association, combinations and trusts, federal regulation, the federal trade commission, and competition versus monopoly. A study of some corporation is made by each student. Three hours a week. Third term.

8. **Transportation.** The development of railways and the part played by railways and waterways in the industrial development of the United States; railway organization, traffic and rates; express, parcel post, and electric railways; federal regulation; and state control of public utilities. Three hours a week. First two terms.

9. **Corporation Finance.** The principles, forms, and methods of corporation finance are studied, and the illustrations for these are drawn from the several forms of corporations. Gerstenberg's "Materials of Corporation Finance" is used as a source book of business documents. Three hours a week. Third term.

10. **Industrial Management.** The principles, forms and methods of plant management constitute the basis of this course. The aim

is to develop capacity for scientific management, and some of the literature on this subject is examined. Three times a week. Second term.

11. **Marketing.** The marketing of agricultural and manufactured products constitutes the part of this course devoted to selling. Some attention is given also to buying, especially to coöperative agricultural purchasing. Three times a week. Third term.

SCHOOL OF EDUCATION.

PSYSCHOLOGY, PHILOSOPHY, AND EDUCATION.

T. J. WOOFTER, Dean,
J. S. STEWART, Professor.
L. R. GEISSLER, Associate Professor.
H. W. ODUM, Associate Professor.
J. R. FAIN, Professor.
L. L. HENDREN, Professor.
J. H. T. McPHERSON, Professor.
R. E. PARK, Professor.
R. P. STEPHENS, Associate Professor.
G. W. WALTER, Student Assistant.

The following courses are open to general election. For fuller descriptions of these courses, see the announcement of the Peabody School of Education.

For the teacher's professional license, elect psychology "1-2" and three courses in education from "1," "5-6," "4-8," "10-12."

Psychology.

1. **Elementary Psychology.** An introductory course covering the essentials of general psychology. Three hours a week, first and second term. *Professor Geissler.*

2. **Educational Psychology.** A study of mental development. Three hours a week, last term. *Professor Geissler.*

3. **Psychology of Business Procedure.** A brief review of social psychology and an application of psychological principles and mental tests to problems of advertising, salesmanship, administration, general efficiency, and vocational selection and guidance of employees. First term, three hours a week. Prerequisite, psychology "1" or "5." *Professor Geissler.*

4*a*. **Psychology of Exceptional Mental States.** A study of psychological problems involved in law, morality, art, every-day life, illusions, hypnosis, dreams, etc. Second term, three hours a week. Prerequisite, psychology "1" or "5." *Professor Geissler.*

4*b*. **Psychology of Mental Deficiencies.** A brief survey of the facts of feeble-mindedness, idiocy, inherited and acquired mental dis-

eases, etc. Third term, three hours a week. Prerequisite, psychology "1" or "5." *Professor Geissler.*

5. **Principles of Psychology.** A systematic study of the adult normal mind. Three hours a week throughout the year with a two-hour period of laboratory work. May be taken as a beginning course but not along with psychology "1," and may be counted as a science in group "2." *Professor Geissler.*

6. **Experimental Psychology.** An advanced course of laboratory work and conferences, the equivalent of a four-hour credit throughout the year. Prerequisites, psychology "1," or "5." May be counted as a science in group "2," provided that psychology "5" has not been counted as a science. *Professor Geissler.*

3. **History of Philosophy.** A study of the movements of thought and an introduction to the great thinkers of the world. Some special study of the modern field. Three hours a week first half year. Junior or senior. *Professor Woofter.*

4. **Ethics.** A study of human conduct. The moral aspect of present-day problems of society, democracy, and human life generally. Three hours a week second half year. Junior or senior. *Professor Woofter.*

9. **Social Philosophy.** A study of social organization and evolution. Three hours a week throughout the year. *Professor Odum.*

EDUCATION.

1. **History and Principles of Education.**

(a) A study of the educational ideals and achievements of the great peoples of the world. Three hours first half year.

(b) The social principles of education. Three hours, second half year. *Professor Odum.*

2. **Educational Psychology.** A study of mental development with especial attention to the adolescent period; also of such fields as instinct, memory, imagination, thought processes, emotion, will, and character. Three hours a week, third term. *Professor Geissler.*

4. **Secondary Education.** (a) Principles of organization, management and teaching. Discussion of the teaching of special high school subjects.

(b) Observation and teaching in the high school of Athens with visits to other high schools of the state. Two hours a week throughout the year. *Professor Stewart.*

8. **The Teaching of Special Subjects.**

8a. The teaching of English in the high school. One hour a week, first half year. *Professor Park.*

8b. The teaching of history in the high school. One hour a week, second half year. *Professor McPherson.*

8c. The teaching of mathematics in the high school. One hour a week, first half year. *Professor Stephens.*

8d. The teaching of physics in the high school. One hour a week, second half year. *Professor Hendren.*

"8a" should combine with "8b," or "8c" and "8d" to complete course "4."

5. **The Principles of Rural Life and Education.**

a. Elementary rural sociology, the rural life movement, farm problems, health and sanitation, the home, church, school, leadership, and community life. Three hours. First term.

b. Study of the modern rural school, rural teacher, rural curriculum, and correlation of the school with community life. Three hours. Second term. *Professor Odum.*

6. **The Teaching of Agriculture.** Organization of what to teach, methods of teaching in the elementary and high schools. Three hours. Third term. *Professor Fain.*

10. **Philosophy of Education.** Its relation to evolution, to society in general, democracy, and the individual. Three hours a week. First half year. *Professor Woofter.*

12. **Administration of Education in a Democracy.** Various school systems and organizations, equipment, supervision, taxation, and special needs of Georgia and the South. Three hours. Second half year. *Professor Woofter.*

GEOLOGY.

Vacant.*

1. **General Geology.** Three hours per week, second half-year. The course of instruction is at first a general one, embracing the study of the distinguishing properties of minerals and common rocks, the decay of rocks and the foundation of soils. Following this is a more extended course of structural, dynamical and historical geology.

MILITARY SCIENCE AND TACTICS.

WALTER O. BOSWELL.

21st U. S. Infantry, Commandant of Cadets.

In accordance with the provisions of the Land Grant Act, military exercises are regularly held in this College. Attendance is compulsory for members of the freshman, sophomore and junior classes, and the students in the one-year course in agriculture, except when excused by the surgeon of the corps of cadets.

The uniform consists of a coat of standard Charlottesville gray cloth; winter trousers of same material, with stripe one inch wide;

*Temporarily in charge of the professor of chemistry.

and blue cap. The uniform costs about $15.55. For spring use white duck trousers, khaki trousers and blue shirt, leggins and hat are required, costing about $5.50.

Practical instruction is given three hours each week, covering the following subjects: Infantry drill regulations, field service regulations, manual of guard duty, firing regulations for small arms, artillery drill regulations, partial.

Theoretical instruction, two hours each week, for commissioned and non-commissioned officers, is given in portions of the above subjects covered by the practical instruction, and is supplemented by lectures. One hour each week of theoretical instruction is required of freshmen.

ONE YEAR COURSE

This course commences at the opening of the fall session and continues throughout the collegiate year. The purpose of this course is to provide suitable instruction for those who can only remain in college for one year. An effort has been made, therefore, to condense the work as much as possible, provide a correct scientific foundation and yet make the instruction of a very practical nature. An outline of the one-year course follows. The schedule indicates the number of hours required in each subject and the amount of time devoted to class-room and laboratory work. Notice that the laboratory instruction has been emphasized as this is considered the best way of demonstrating the value of applied science to the solution of the problems of the farmer. Students entering this course who are capable of carrying the freshman mathematics for English may be permitted to do so upon the approval of the president of the College.

ONE-YEAR REQUIREMENTS.

First Term.	Hours.	Lab. Periods.
English	3	--
Arithmetic	3	--
Cereals	2	--
Cereal Judging	--	1
Chemistry	3	--
Iron and Wood Work	--	3
Horticulture	3	1
Forestry	2	1
Botany	3	--
Veterinary Medicine	3	--
	22	6

Second Term.

English	3	--
Arithmetic	3	--
Cotton and Cotton Grading	3	1
Soils	3	--
Farm Machinery	--	1
Horticulture	3	1
Dairying	1	2
Feeds and Feeding	3	1
Farm Management	2	--
Veterinary Medicine	2	1
	23	7

THIRD TERM.

English	3	--
Farm Accounts	3	--
Grass and Forage crops	3	1
Soil Fertility	3	--
Plumbing and Pipe Fitting	--	1
Horticulture	3	1
Farm Buildings	--	1
Practice Work Animal Husbandry	--	1
Surveying	3	1
Breeds and Breeding	3	2
Veterinary Medicine	2	--
	23	8

AGRONOMY. (One-year course).

Cereals and Cereal Judging. The history, use and cultivation of the different cereals is studied. Especial attention is given to seed selection as influencing the yield of farm crops. A study of the various cereals, especially corn, is made by use of the score card. First term. Two 1-hour recitations and one laboratory period.

Farm Management. An examination of the various business methods employed on different classes of farms is first undertaken. Special attention is given to systematizing the work and determining the effect of various rotations on the maintenance of fertility. A stereopticon is used to show how various kinds of farms should be arranged so as to conduct the business with the greatest economy. Second term.

Grass and Forage Crops. A study is made of the various grasses adapted to this state that can be utilized to the best advantage for pasture and hay. The uses of the forage crops, especially the legumes, are given considerable attention. Methods of growing and

preserving silage are considered at length, as this is undoubtedly the best form for preserving forage crops in the South. Third term.

Soils. A study of the physical properties of soil is made, and the effect of good and poor mechanical conditions on crop production is demonstrated. Methods of improving the physical conditions are studied. Special attention is given to the water-holding capacity of the soil, and the best methods of conserving soil moisture. Second term. Three 1-hour recitations.

Soil Fertility. The different fertilizing ingredients and their function in plant growth will be discussed. Methods of mixing fertilizers and determining the formulas best adapted to different soils are studied. The effect of rotation of crops on soil fertility and the draft of the different crops on the soils also receive attention. Third term. Three 1-hour recitations.

COTTON INDUSTRY. (One-year course).

Emphasis is laid on the importance of seed selection. A study of types of plants with special reference to their yielding capacity is made, and the conditions affecting length, strength, uniformity, quality and quantity of fiber. Some attention is given to combing and grading cotton, and all varieties are studied in the laboratory. There is a complete set of grades of long staple and upland lint cotton in the laboratory for inspection and comparison, and students are required to grade by the samples, after the basis of grading has been pointed out. Second term. Three 1-hour recitations. One laboratory period.

ANIMAL HUSBANDRY. (One-year course).

Breeds and Breeding. A practical course will be given in the study of domesticated animals, and a consideration of the fundamental laws underlying their production. Three 1-hour recitations.

Dairying. In this course lectures will be given on the principles of modern dairying and on the manufacture of butter, cheese and other products. Practice work in the operation and repair of dairy machines will be required of all students. The use of the Babcock test and other apparatus for the detection of adulteration of milk will be fully explained. Two lectures and two laboratory periods. Second term.

Feeds and Feeding. In this course a study of the various feeding stuffs will be taken up. The balancing of rations and their adaptation for maintenance, development of bone and muscle, production of milk and butter, and for maintaining and fattening farm animals will be discussed and explained. Three 1-hour recitations and one laboratory period. Third term.

Stock Judging. Scoring, judging and classifying the various classes of farm live stock will be an important part of this course. After the student has become proficient in the use of the score card, work will be given in comparative judging and show-ring placing. The standard of excellence as established by the several breeders' associations will also be given some attention. First term. Two laboratory periods.

HORTICULTURE. (One-year course).

Orchards. A study of orchards as to location, site, exposure, cultivation, fertilization, planting, pruning, spraying, thinning, harvesting and marketing. Book to be used, "Principles of Fruit Growing," by L. H. Bailey. Three 1-hour lectures and one laboratory period per week. First term.

Propagation and Pruning. A study of budding, grafting, and other methods of plant manipulation and propagation, with a course in the principles and practice of pruning. Three lectures and one laboratory period per week. Second term.

Small Fruit and Trucking. A course in the management of small fruit plantations and truck gardens, following much the same order as the orchard course. Particular attention will be given to the construction and management of hot beds as well as to the principal small fruit and vegetable crops of the section. Three lectures and one laboratory period per week. Third term.

AGRICULTURAL ENGINEERING. (One-year course).

Wood Work. This includes the care and use of wood working tools. It will be made as practical as possible. The majority of the exercises will consist of the construction of articles that will be needed on the farm, such as gates, fences, wagon beds and other farm conveniences. First term. Two laboratory periods.

Forge Work. This course includes welding and shaping of iron and handling of steel. Considerable attention will be paid to the making and tempering of small hand tools. A student after taking this course should be able to do all of the ordinary repairs of farm machines and other blacksmithing that will be necessary in farm work. First term. Two laboratory periods per week.

Farm Machinery Judging. A study of the principles of construction and operation is made. Considerable time is given to studying the different farm machines. Some time is devoted to motors, especially gasoline and steam engines. Third term. Two laboratory periods.

Farm Building and Fences. The strength and adaptability of the materials available for construction are first determined. Principles of construction are studied and considerable time is

given to planning the different farm buildings with especial regard to convenience and sanitation. The use of concrete on the farm and principles of concrete construction are demonstrated. Laboratory practice constitutes an important part of the work.

Farm Engineering. Instruction is given in the use of the instruments necessary in surveying farm lands and terracing. Some time is given to terracing and leveling.

Plumbing and Pipe Fitting. A short course in plumbing and pipe fitting is given in connection with farm building. It consists of the location and planning of the water supply and drainage away from the home, and the proper laying out of a perfectly sanitary system of plumbing for buildings. The proper assembling and selection of the material needed for a complete job, and the calking of joints are studied.

VETERINARY SCIENCE. (One-year course).

1. Consists of lectures in the anatomy and physiology of the horse, with brief notices of the variations occuring in the other farm animals. Lectures on materia medica cover the more commonly used drugs and medicines, paying particular attention to the action and dosage of the drugs. First term. Three hours per week.

2. Consists of lectures on theory and practice and surgery; deals with the most common diseases of the horse and cow, the minor operations that are performed on these animals, and the care of surgical and accidental wounds. Second term. Two hours per week.

3. Consists of free clinics held at the veterinary hospital. One hour per week. Second and third terms.

4. Consists of lectures on obstetrics and dentistry. Two hours per week. Third term.

AGRICULTURAL CHEMISTRY. (One-year course).

This course is planned to prepare the student for intelligent study of the chemistry of soils, fertilizer and foods. At first the elements and compounds most important to agriculture are taken up. The composition of farm crops, and the application of chemistry to plant and animal life are studied. Text, "Agricultural Chemistry," by Hart and Tottingham. This course consists of three lectures during first term.

FORESTRY. (One-year course).

A study of forestry as applied to farm woodlands. How to secure a stand of timber, how to thin, to protect, and harvest the forest crop. Second half-year. Two 1-hour lectures and one 1-hour practice periods.

SUMMER COURSES IN AGRICULTURE

The Georgia State College of Agriculture offers two sets of courses during its summer session, the collegiate courses leading to degrees, and the Summer School courses designed to equip public school teachers for better teaching of agricultural subjects.

Collegiate Courses.

The courses here offered apply toward a degree with credit equal to those given during the regular term.

COST. A tuition fee of $20.00 for each course will be charged; also a laboratory fee varying with the course, of from $5.00 to $10.00 to cover cost of material. In addition the student will be charged for any breakage.

Not more than one full course can be taken by each student and three students will have to apply for any collegiate course offered before it is given.

Agronomy 1 and 2, Cereals and Cereal Judging. The origin, history and production of wheat, corn, oats, barley and rye are considered. Two hours credit. Laboratory fee, $5.00. *Professors Fain and Rast.*

Agronomy 5 and 6. A study of the origin and physical properties of different soil types. Factors in crop production. Methods of soil management and studies of commercial fertilizers. Lectures, recitations, laboratory work, field excursions and parallel readings. Three hours credit. Laboratory fee $5.00. *Professor Crabb.*

Animal Husbandry, 2, 3, 4, and 5. The origin, history and development of the present type of horses, mules, beef cattle, dairy cattle, sheep and swine are taken up. Four hours credit. Laboratory fee $5.00. *Professor Goodwin.*

Horticulture, 1, 2, and 3. Fruit growing, pruning, propagation, and truck gardening are included in this course. Four hours credit. Laboratory fee $5.00. *Professors McHatton and J. W. Firor.*

Agricultural Engineering 1, 2, 3, 4, and 5. Wood and forge work, drawing, farm machinery, motors and farm surveying are treated. Three hours credit. Laboratory fee $5.00. *Professor Hart.*

Agricultural Engineering 6 and 7. Fencing and farm building. Laboratory fee $5.00. *Professor Hart.*

Veterinary Medicine, 1 and 2. This course includes anatomy and physiology of farm animals and some work in materia medica. Three hours credit. Laboratory fee $5.00. *Dr. Burson.*

Agricultural Chemistry 2b and 3b. Qualitative and quantitative analyses for agricultural students. Qualitative analyses equal to that given in college catalogue under "2b" will be required. Four hours credit. Laboratory fee $10.00. *Professors Worsham and Carter.*

Poultry Husbandry, Farm Poultry 1. A general course in poultry management, covering breeds and breeding, housing, feeding, incubation, brooding and marketing. Breeds best suited to Georgia and their requirements will be studied in detail. Poultry problems in this state will also be fully discussed. Laboratory work will consist of practical work among the flocks on the College poultry farm. Five lectures and three laboratories per week. *Wm. S. Dilts, Instructor.*

Other courses will be given if the number of students applying justify it, and it is found possible to offer them.

Summer School Courses.

(No tuition is charged for these courses.)

Elementary Agriculture. The state text-book will be followed in a general way with such references to additional works as may be deemed necessary. Especial emphasis will be given to the work to be done by the students in the elementary schools. This will include simple experiments to be performed at the school, such work as can be done at the home of the students, and in the school garden. Excursions will be made to different parts of the College farm. The various laboratories of the Agricultural College will be utilized in studying the various laboratory experiments suggested.

Home Study: Halligan's "Fundamental's of Agriculture," Call and Schafen's "Laboratory Manual of Agriculture." *Professor Fain.*

High School Agriculture. Warren's "Elementary Agriculture" will be used as a text-book. Especial study will be made of laboratory practice to go with this text. The general scheme for this laboratory work will be outlines showing how seasonal work can be combined with the text, how the home farms and gardens can be used and especial exercises suggested to increase the powers of observation in students. Regular excursions over the college farm, dairy, etc., will be required.

Home Study: "Soils," by Fletcher; "Field Crops," by Wilson & Warburton; "Beginnings in Animal Husbandry," by Plumb; "Fruit Growing," by S. B. Greer; "Rural Agriculture," C. W. Davis. Read all and pass examination on any two. *Professor Fain.*

Note: For elementary agriculture, see general elementary department course.

Elementary Field Crops. This course is designed to give special information on common field crops. A study will be made of their classification, uses, relative importance, their growth, and the functions of seed, leaves and roots. Attention will be given to the following crops. Grain crops, including corn, wheat, oats, sorghum, etc.; forage crops, grasses, legumes, alfalfa, etc.; miscellaneous crops, potatoes, sugar cane, tobacco, etc.; fibre crops, cotton,

etc. A brief study of weeds will be made, also of crop rotations. Class work will include lectures, recitations and laboratory exercises. Text: "Field Crops," by Wilson and Warburton; "Field and Laboratory Studies of Crops," by McCall. Home Study: Duggar's "Southern Field Crops." *Professor Crabb.*

Elementary Soils and Soil Fertility. This course is designed for those who desire special information on soils and soil fertility. The work includes a study of soil formation, classification, physical properties and composition of soils. Also the study of conditions essential for plant growth, plant food elements in the soil and their relation to plant growth. The management of different soils for the maintenance of their productivity and the use of commercial fertilizers are studied. Class work consists of lectures, recitations, demonstrations, laboratory experiments and field excursions on the Agricultural College farm. Text "Soils and Soil Fertility" by Whitson and Walster; "Field and Laboratory Studies of Soils," by McCall. Home Study: Burkett's "Soils." *Professor Crabb.*

Animal Husbandry. This course includes a study of the characteristics and adaptation of the different types of horses, cattle and hogs. Some study is also made of the more important breeds of each class. The breeding, feeding and management of live stock is also taken up in a general way. The laboratory periods are given over to judging and comparative study of live stock on the College farm, the making of butter, separation of milk and testing of milk and its products.

Manual Training. This course is offered in handling, sharpening and use of elementary tools; in use of square, thumb, guage, saw chisels and planes; in construction work based on Kings "Elements of Construction," wood work, forge work, drawing. *Professor Hart.*

Landscape Gardening and Floriculture. This course will be adapted to teachers of high schools and upper grammar grades. It includes a discussion of the fundamental principles of landscape gardening, and a study of the plants used to obtain the desired effects. The handling, growing and propagation of flowers and other ornamental plants receive attention. Special emphasis is placed upon school and home ground improvement, both in the country and in the city. Regular excursions to the various points of landscape and floricultural interest in and about the city of Athens. Text: "The Manual of Gardening," by L. H. Bailey. Other references "Landscape Gardening," by Waugh; "Landscape Gardening," by Maynard; "Kemp's Landscape Gardening," by Waugh; "Principles of Floriculture," by White. Home Study required.

FOREST RANGER SCHOOL.

Forest Camp, June 21 to August 15.

The Ranger School is created to supply a demand for a short course of training in practical forest engineering, but does not prepare for a position in professional forestry. The object of the work is to make a man, already acquainted with woods work, more efficient in his labor. The school is open to men already in the forest service, woodsmen who desire to prepare for the ranger examination, and lumbermen who desire technical training in timber cruising and surveying.

A number of textbooks will be required in connection with the various courses of study but these may be purchased through the school if the order is placed early. The camp library will contain a good assortment of forest literature and all the important lumber, trade and forest journals. The school day will consist of eight hours —8 to 12 o'clock a. m. and 1:30 to 5:30 p. m. With the exception of Wednesday afternoon and Sunday, work will be arranged for every day of the week.

Expenses. In addition to the regular tuition of $10, there is a laboratory fee of $10.00 to cover cost of equipment. Board may be had at the camp mess at a very reasonable figure. The mess will be conducted upon a coöperative basis and the indications are that the charge will not be more than $4 per week.

Admission and Credit. The camp is open to men of good character who have attained an age of 18 years and have completed their grammar school work. Upon completion of the course of study there will be held a "model" ranger examination, successful competition in which entitles a man to a certificate from the school. To those men possessing the necessary qualifications, who desire to matriculate in the Forest School, credit will be given for the freshman summer camp.

Course of Study.

Dendrology. The identification of trees and shrubs, native and introduced, common to Georgia and the south. Special stress placed upon characteristics present only in cut logs. Herbarium required from each student. Text: Collins and Preston's "Wild and Commonly Cultivated Trees."

Surveying. Use of box compass in running lines, pacing, location, platting notes, mapping, methods of survey, resurvey, marking corners. Text, Carey's "Handbook for Northern Woodsmen."

Mensuration. Units of measurement, log rules, estimating timber, use of volume tables, methods of reconnaissance. Text, Graves' "Forest Mensuration."

Lumbering. Study of woods operations, tools used and organization of work, methods of transport, milling. Scientific management of woods operations. Note-book and report.

Special Lectures. As opportunity offers, arrangements will be made for addresses upon pertinent subjects by Forest Service officials, prominent lumbermen and visiting teachers. Experts in various lines will discuss fire protection, forest tenance, grazing in the forest, reconnaissance work, camping and woodcraft.

In order to make proper arrangements it will be necessary that all applications be in the hands of the director not later than May 15.

NATURE STUDY SCHOOL.
Forest Camp, July 5 to August 15.

There is a growing tendency to introduce nature study, forestry and agriculture in the secondary schools of the state. The Nature Study School is created to supply this demand. The school is open to teachers and prospective teachers of both sexes and to mature men and women who desire a general knowledge of the woods and fields. Every facility will be offered those desiring to collect material for class room demonstrations.

LOCATION OF FOREST CAMP.

Forest Camp is located on the Georgia Tract, a national forest situated in Fannin and Union counties, and is about twenty miles southeast of Blue Ridge in the heart of the Blue Ridge Mountains. The camp is situated on the picturesque Ocoee river, a mountain stream some seventy-five feet in width, affording good bathing, fishing and canoeing.

Fuller particulars may be obtained from the bulletin containing announcements of the Forest School.

Boys' and Girls' Short Courses

To meet the requirements of the boys and girls who have won short course scholarships in corn, canning, pig and poultry club work, special summer courses have been arranged. The instruction is elementary, practical and visualized as far as possible by application or illustration. These courses are offered for 1916, August 8-18.

FOR CORN AND PIG CLUB BOYS.

Soils and Fertilizers. Five lectures. A careful study of nitrogen, phosphoric acid, and potash, the sources from which we can get these and their function in plant development. A careful study of formulas—what they mean, etc., will be given. Home mixing of fertilizer will be stressed and the boy will be shown how to do this

work accurately. A detailed study will be given of the most general types of soil found in Georgia, to what crops they are best adapted, and how best to handle them to get maximum yields.

Rotation of Crops. Five lectures. A simple study of the best methods of crop rotation and the effects on increased production. Special stress will be laid on winter cover crops and on all forms of useful legumes.

Seed Selection. Five lectures. How the boys may improve the producing power of plants by selecting seed from the field. How to grow improved varieties of seed and how to care for same. Cereal judging will be stressed and the boys will be required to do considerable amount of this work in the laboratory.

Live Stock. Five lectures. The boys will be required to study closely the work being done at the College in regard to dairying, beef production, hog raising, and horse breeding. Inspection of each of these will be made by the boys with the professor in charge, and they will be required to judge according to score card after being given the lecture.

Farm Machinery. A careful study of all forms of improved farm machinery will be provided and the boys will be required to handle same.

Farm Poultry. The poultry course for boys is designed to give them practical knowledge of chicken raising on the farm. Incubation, care of chicks, feeding, housing and marketing will be among the subjects discussed. Two hours each day will be given to this work and the course will be made as practical as possible. The boys who complete this course should be able to handle and care for a good sized flock of chickens. Laboratory work will consist of inspection trips to model poultry farms, operation of incubators, killing and dressing poultry for market.

Field Observation. The boys will be taken in charge and shown the farm buildings, farm equipment and work being done on the college farm. Special stress will be laid on the test plat and the alfalfa fields.

Daily Record and Booklets. The boys will be required to write an attractive story of how they grew their acres of corn in 1915. These will be put out in booklet form. An outline for the story and helpful suggestions will be given.

Anatomy and Physiology. A series of five lectures, given in simple language, including studies of the blood, circulation, foods, digestion, and suggestions for the care and handling of farm animals.

Home Gardening. Five lectures. This course of lectures will take up the fundamental principles of gardening, discussing soils,

fertilization, handling of plants, varieties and cultural methods particularly adapted to the home garden.

Home Orchard. Five lectures. This course will consist of a general discussion of fruits and varieties, soils and fertilizers as well as cultural methods required. Special attention will be given to the home fruit acre.

FOR CANNING AND POULTRY CLUB GIRLS.

Practical Farm Poultry. The poultry course for girls is designed to give them a practical knowledge of chicken raising on the farm. Two hours each day will be spent in this work. A series of short lectures will be given which cover the most important points in feeding, incubating and brooding, housing, caring for and marketing the eggs, killing and dressing fowls and in preventing disease in the flock. Following the lecture the girls will take laboratory work or will be taken out into the poultry yards where they will be given a chance to become familiar with the different varieties of chickens common in Georgia, and learn the methods of poultry raising practiced at the College poultry yards. The girls will be expected to set up and start an incubator and brooder, assist in killing and dressing fowls for cooking, make lice powder, test eggs and do other practical work.

After completing this course a girl should be able to take up poultry work at home with increased interest, and make it pay.

Home Vegetable Gardening. This course is designated to teach the fundamental principles of vegetable gardening by going into a discussion of the following: varieties, plant propagation, soil fertilizing, soil preparation, transplanting of certain varieties, summer and winter cultural methods, the use of garden implements, fighting insects and preventing disease.

Ten lectures are given in this course. One entire lecture is devoted to the tomato, since this vegetable has aroused a great deal of interest with the advent of the girls' canning clubs. The remaining lectures are upon groups of vegetables, and are so given as to teach principles rather than routine of gardening.

Cooking and Food Study. Ten two-hour periods are devoted to cooking, the work being planned with the two-fold object of teaching some fundamental principles of cookery and giving the student skill in the preparation of wholesome dishes. The lessons will include cooking green vegetables, starchy vegetables, making cream soups, making muffins, biscuit, light-bread, sandwiches and coffee; cooking cereals and meat stew in a fireless cooker, and preparing the chickens dressed in the poultry class for table. A number of periods will be given to the study of foods. The classes of food

and their function in nutrition will be taught by experiments, use of charts and lecture. The selection of foods for a healthful diet will be considered in brief but practical way.

Rural Home Conveniences. A practical course illustrated by pictures, charts, and the articles themselves whenever possible. The course will develop a knowledge of conveniences leading to sanitary conditions in the farm home and to economy of time and energy on the part of farm girls and women. It will demonstrate how such conveniences may be introduced into all the homes at a minimum cost; how many simple home-made inventions may be substituted for the much more costly commercial outfits.

The following subjects will be included: Water-works systems; lighting systems; labor saving conveniences in the kitchen; cement walks; screens in doors and windows.

Farm Dairying. A practical course in Farm Dairying, covering five periods, two hours each, will be given as follows:

1. Milk; composition and treatment for household use.
2. Cream; its separation from milk and treatment for butter making.
3. Butter; how to make it of the best quality and secure the greatest yield at the least expenditure of labor and for equipment.
4. Dairy Products; scoring and marketing.
5. Testing milk and its products for fat, acidity and quality.

Home Orchards. This course consists of a general discussion of fruits and varieties, soils and fertilizers as well as cultural methods required. Special attention is given to the home fruit acre.

Summer Cotton Grading School

A course in cotton grading, warehousing, marketing and cotton arithmetic is offered at the Georgia State College of Agriculture. The work consists of lectures on the scientific aspects of cotton grading, what constitutes a grade, etc., but the major portion of the course consists of laboratory work, i.e., actually handling the samples of the different grades and half grades. All of the white grades of cotton are taught according to the requirements of the United States official standards, a set of which is on hand for the comparison of all doubtful grades. The stains, tinges and blues are also studied since these grades are found in practically every market.

During this course the students are required to handle a great many samples daily and thereby become thoroughly familiar with the appearance of various grades. At first these are of known type, but later the students are given mixtures of samples which they are required to classify. Later the laboratory is turned into a cotton market where the students buy and sell different lots to each other.

This not only offers practice in grading but also gives practical experience in figuring averages which is an item of no little importance to the cotton buyer. The entire course is one of diligent work and the student who is not willing to do this need hardly expect to complete the course. However, for each student who satisfactorily completes the course there has been provided by the board of trustees a certificate of efficiency signed by the president of the College and the instructors in the course.

The arrangement of the program is such that all the lectures and the most important instruction in grading will be in the afternoon. Therefore, students may take regular Summer School work in the University of Georgia, if they so desire. The laboratory will be open, however, from 9 a. m. to 5 p. m. and those students who are interested in cotton grading only, may work both morning and afternoon, thereby becoming more proficient.

There will be a fee of five dollars for this course which is to cover registration, cotton samples, outlines of lectures, etc.

THREE-MONTHS OR WINTER COURSE IN AGRICULTURE.

Short courses of instruction in agriculture and related subjects are offered for the benefit of those who are engaged or expect to engage in farming, and yet who are so situated that they cannot undertake a full college course of study. This course is given during the winter when work is least pressing and the time can best be spared. The course consists principally of the regular work provided during the winter term of the one-year course, with such additional elective subjects as the student finds he can conveniently carry after consulting the president of the College.

Short Courses for Farmers

In Cereal Production, Cotton Industries, Live Stock Farming, Horticulture. This course is of ten days duration, beginning Tuesday, January 2, and ending Friday, January 12, 1917. It is open to all farmers, is free except for a registration fee of $1.00, and no examination is required.

The object of this course is to present essential facts in a practical form, with plain language, and make them easy of application to every-day work on the farm.

The lectures offered in the several short courses are summarized and presented to the student on mimeographed paper. When the course is over each pupil will have fifty lecture sheets, comprising a ready reference book on the subjects which he has studied.

This course is offered in midwinter at the beginning of a year as the most suitable time for getting away from the farm and as the logical time to plan the year's program for the farm under the guidance of experts at the College.

Rapid changes in agricultural activities are necessitated by the coming of the boll weevil. The active farmer who can not cease work long enough to take a college course, will find the short course a great assistance in helping him into other lines of farming than he is accustomed to.

No other way is open to the farmer for getting so quickly, and at such low cost the information that the agricultural emergencies of Georgia require, than that presented by the Short Course of the College of Agriculture.

AGRONOMY. (Short Course).

Five Lectures on Cereal Production and Improvement. Production of cereals at least for home consumption is of importance. Methods of soil preparation, fertilization and means of seeding adapted to Georgia conditions will be given especial attention. The improvement of the crops by means of seed selection will have to be the basis of increased production in this state. Records from the demonstration field for a number of years will be used to illustrate what can be done with the various cereals and the influences of different methods of culture. *Professor Childs.*

Ten Lectures on Legumes. The advantages of legumes are pretty thoroughly understood at this time, and there seems to be a good deal of interest in requirements of special crops, such as alfalfa, bur clover, vetch, true clovers, and others. These different crops will be discussed in regard to their history, soil requirements, fertilization, inoculation, seeding, time of cutting and curing. More time will be devoted to alfalfa than to the others. Bur clover and other winter growing legumes will receive special attention. *Professor Fain.*

Five Lectures on Insects Injurious to Grain. In Georgia a great deal of damage is done the cereal crops by various insects, both in the field and after storage. A study of the life history of the more injurious insects will be made with suggestions as to methods of control. *Professor McHatton.*

Ten Lectures on Farm Management. Factors that enter into successful farming as shown by the recent surveys will be discussed.

The different lines of farming and combination of these different lines will be given special attention.

The equipment and organization of the farm for special combinations will be considered.

Successful coöperative organizations of this country for marketing farm products will be studied. *Professor Fain.*

Five Demonstrations in Cereal Judging. Cereal judging will include a study of varieties by use of the score card, by actual measurement and scale, and by germination tests. This course will be especially helpful to those who are seeking new varieties for their farms. *Professor Childs.*

Five Periods in Demonstration of Legumes. Study will be made of the seeds of the various legumes and the best method of harvesting and handling. An examination of nodules will be made on the different plants showing how they develop under different conditions. Different methods of inoculation will be demonstrated. Methods of handling crops, such as time of cutting and curing will be given special attention. *Professor Starr.*

Ten Lectures on Fertilizers. A careful study will be made of the effect of various mineral elements in the soil on plant growth; the best means of supplying those in which the soil is most likely to be deficient; the sources of nitrogen, phosphoric acid and potash, and methods of purchasing, mixing and applying these various constituents to the soil for the purpose of producing maximum crops. Liming soils, crop rotations and their relation to maintaining the plant food supply will be discussed. *Professor Soule.*

Ten Lectures on Soils. The general soil types of Georgia will be studied from the standpoint of origin, physical and chemical properties, present condition and needs. A special study will be made of the moisture content, its movement and control. Attention will be given to the value, and sources of organic matter, especially of green and stable manure. The value and sources of lime will be emphasized as well as methods of cultivation for the improvement of soils. *Professor Crabb.*

Five Lectures on Farm Machinery. Owing to the scarcity and high price of labor, every means which will reduce the cost of production must now be employed by the cotton planter. Therefore, the different forms of plows, cultivators and seeders which may be utilized so as to economize labor and increase the efficiency of soil cultivation will be considered, and as far as possible, the various implements discussed will be exhibited before the class in the farm machinery laboratory. *Professor Hart.*

The Cotton Plant. Five lectures. These will deal with a brief history of the cotton plant, and the classification of cotton according to varieties. As much time as possible will be spent in the study of individual plants, including methods of selection for improvement. Records of plants from the breeding plots in the demonstration field form excellent material for graphic illustrations of the principles

involved. Some of these lectures will also be illustrated by stereopticon. *Professor Rast.*

Cotton Cultivation. Five lectures. These lectures will include the preparation of land; the best methods of applying fertilizers; when to apply same; details of preparation immediately before planting; how and when the cultivation of young plants should be begun, and the kind of implements best suited to these purposes. *Professor Westbrook.*

Cotton Diseases. Five lectures. The principal disease affecting the cotton plant, the cause so far known, and the best method of combatting will be discussed in detail. *Professor Starr.*

Cotton Insects. Five lectures. Various insect enemies of cotton, some of which are seriously reducing the yields obtained in the south, will be studied. In these lectures, the history, characteristics, and the best method of controlling the depredations of the various insects attacking the cotton plant will be discussed. *Professor McHatton.*

Cotton Grading. Ten demonstrations. In this course the student will have an opportunity to handle and grade samples of cotton each day. *Professor Rast.*

LIVE STOCK. (Short Course).

The college farm comprising 730 acres, affords many useful lessons in live stock, since it is operated and managed on the basis of a stock farm. Herds of pure-bred Jerseys and Holsteins and grade dairy cattle are maintained.

Percheron horses are used as the foundation in horse breeding, while hog production is represented by the Tamworth and Berkshire breeds. More than 150 head of live stock are kept on the farm, thus providing ample facilities for students to learn the characteristics of the different breeds, and the best methods of feeding and handling the same for correct results. Herefords and shorthorns are grown for beef.

The department of veterinary science has a laboratory building where the disease of live stock are studied and clinic work is carried on.

Ten Lectures on Feeds and Feeding. This course reviews the courses of feeding stuffs available for the maintenance of live stock, special emphasis being laid on the value of cotton seed and its by-products, and all other materials produced in the state which can be utilized to good advantage in animal nutrition.

Ten Lectures on Breeds and Breeding. In this course the origin, history and development of the various breeds of horses, cattle, sheep and swine adapted to Georgia are considered.

Ten Lectures on Diseases of Farm Animals. This course includes a review of the methods used to control and eradicate contagious diseases of live stock, including United States quarantine regulations concerning the transportation of animals affected with contagious diseases and disease-producing parasites; a consideration of some of the more common diseases and ailments of farm animals, together with means of prevention and methods of treatment.

Five Clinics are held to demonstrate the methods of administering hog cholera serum and other biological products, how to examine horses for soundness, together with a consideration of the seriousness of various blemishes and unsoundness from an economic standpoint.

Five Demonstrations in Stock Judging. For the student electing the live stock course, practical work is given in the afternoons in scoring farm animals, as well as actual work in show-ring placing. Students taking the course in live stock farming also elect fertilizers and soils.

Five Periods in Stock Judging. The score card is used to familiarize the students with the important points of the different classes of live stock. With the records of production of the dairy herds, the correlation between form and function can be clearly demonstrated. The stock judging work includes horses, hogs, dairy and beef cattle.

Five Periods on Preparing Show Cattle. This course deals with forming, fitting and decorating for show; the making of holders and the ordinary methods of confining animals.

HORTICULTURE. (Short Course).

Many persons are intensely interested in securing more definite knowledge concerning orchard management. This is especially true since the wonderful possibilities of apple production in north Georgia have become more generally appreciated. To meet this public demand a specialized course in horticulture has been provided.

Five Lectures on Trucking. In this course will be given a discussion of the soils, cultivation, fertilization, harvesting, marketing and other truck problems.

Ten Lectures on Orchard Management. These will include discussions of site, location, choice of plants, planting, tillage, cover crops, fertilization, pruning, thinning, frost, spraying, picking, packing and selling.

Five Lectures on Diseases of Fruits. Brown rot, apple scab, pear blight, and other diseases incident to the culture of the tree fruits in Georgia will be considered.

Five Lectures on Insects of Fruits. The codling moth, plum

curculio, peach borer and other insects incident to the culture of tree fruits in this state will be discussed.

Ten Demonstrations in Spraying and Pruning, consisting of practice of mixing and applying sprays, fighting frost, pruning trees, etc.

Students taking the course in horticulture will also elect fertilizers, soils and farm machinery.

EXTENSION DIVISION

It is the purpose of the College of Agriculture to aid all educational activities which are being carried on in the state. The fulfillment of this purpose is one of its greatest obligations to the state and every effort will be made to further the work of extension teaching. Two great ends are to be subserved by work of this character. First, the systematizing of the educational activities of the state and the raising of these to a higher level of efficiency. Second, the dissemination of useful knowledge which has accumulated in recent years, but is not generally appreciated as it should be, and which cannot be brought to the attention of adults and those remotely situated from the college through extension agencies.

Recognizing the importance of this character of work, the General Assembly of Georgia during the annual session 1915, re-appropriated $40,000 to the State College of Agriculture to be used for extension teaching, and in addition thereto made an appropriation of $25,174 to offset the appropriation of $35,174 made by the federal government under the Smith-Lever Act of May 8, 1914. Under the same act of congress an increased amount becomes available for extension teaching and farm demonstration work, year by year, providing the state appropriates an equal amount.

In accordance with this action of the state legislature and the federal government, the board of trustees has organized the work of the several departments constituting the College, so that they can carry on their proper share of extension work. Through the extension department, the extension schools, educational trains, farmers' meetings and miscellaneous conferences are organized and directed.

Every member of the college staff gives some of his time and effort to extension activities.

The department of agronomy is utilizing a series of test plats on different types of soils of the state to secure data concerning their principal defects, and what forms of fertilization and crop rotation are best adapted to build them up. This department maintains a twenty-four acre field for the purpose of carrying on investigations relative to corn and cotton breeding, crop rotations, fertilizers and soil management. This information is invaluable to the people of the

state and is distributed in bulletin form at the meetings held by the extension service.

The traveling field representatives of the department of agronomy are also engaged in advising the farmers relative to the improvement of certain strains of cereals, corn and cotton which are being developed through seed selection and hybridization.

The department of agricultural chemistry has undertaken a physical survey of several counties and is making analyses of all the type soils found therein. A close coöperation of necessity exists between the departments of agronomy and agricultural chemistry in this work, which is one of the most fundamental character, since it means ascertaining the soil deficiencies and determining the methods by which these can be supplied. Several men are employed by this division.

The department of animal husbandry is actively engaged in a number of extension problems. Five specialists in live stock are devoting all of their time to field work. In so far as possible, these men work through the county agent, thus multiplying their efficency materially. Since there is no adequate supply of foundation breeding stock, one of the first problems has been to buy registered animals for the farmers. In this way much better individuals have been secured for the same price than could have been gotten by individual purchase. County live stock associations have been organized, and in so far as possible an attempt has been made to have all the farmers in a community adopt one breed. Advice has been given as to the laying out and equipping of stock farms for the most efficient and economical operation. A very important part of the work has been the construction of silos. Swine demonstrations were carried on with 65 farmers in southwest Georgia during the past year.

One of the most noteworthy developments has been the establishment of a coöperative creamery in connection with the Agricultural College. It is believed that through this creamery the farmers will realize fifty per cent more for their butter than they have been securing in the past. With this incentive it is felt that many more farmers will find it profitable to keep dairy cattle in the future.

Steer feeding demonstrations have been conducted on a number of farms. Calf clubs have been organized for the purpose of producing baby beef. Considerable assistance has been rendered the live-stock departments of many of the county and state fairs.

On the College farm more than 200 head of live stock are maintained for the purpose of securing data to be distributed in bulletin form for use in extension schools and agricultural meetings.

Two instructors in poultry husbandry have charge of this special line of work and they are prepared to advise with all interested

in this important industry. These men are organizing and developing the poultry club work in various counties of the state.

The department of horticulture is carrying on extension work in connection with the peach, apple, pecan and trucking industries. Demonstrations in spraying, pruning and orchard heating and other practical problems are given. This department is also supervising the work of the county demonstration agents in developing the trucking industry in a number of north and south Georgia counties.

The department of farm mechanics assists farmers in the preparation of plans for farm houses, barns and other outbuildings necessary on an up-to-date farm.

The department of cotton industry is distributing seed of a selected variety which is proving highly resistant to anthracnose, and is engaged in investigating many vital problems associated with the more economic producton of cotton in the state.

The department of veterinary medicine is manufacturing hog cholera serum. It is also teaching farmers the methods of inoculating hogs with the serum and one expert does nothing else than aid owners of hogs in controlling hog cholera by the use of serum and sanitary measures. It is possible through the use of serum to largely control the destruction wrought by hog cholera. Its importance, therefore, needs no further emphasis. This department is also coöperating in every possible way with those agencies which are endeavoring to eradicate the cattle tick, and to control many diseases which cause serious loss to Georgia farmers.

Through the publication service of the College and particularly through the use of newspaper plate in the weekly papers, the College is reaching a majority of the reading farmers of the state on an average of once a week during the scholastic year, with information considered vital to the welfare of Georgia agriculture. The daily papers and the agricultural journals are also used, all such publications in the state evidencing a desire for coöoperation in this form of extension service of the College.

Bulletins and circulars are now being issued by the Extension Division and in accord with the Smith-Lever bill under which the franking privilege is enjoyed, but all such bulletins and circulars are considered and numbered as of the series issued by the College. In other words, they are not separate publications and should be looked for in the College serials.

Some of the most effective work done by the College is through the organization of the Boys' Corn Clubs, Girls' Canning Clubs, Boys' Pig Clubs, and Poultry Clubs. Departments are maintained for this service, and the interest has grown to such extent that a number of special agents devote their entire time to this work. This

constitutes one of the most important lines of activity being carried on through the extension work of the College.

The various departments enumerated act as a clearing house of agricultural information for Georgia farmers.

During the year, 1710 meetings were held, and 216,837 reached exclusive of those served by county agents or through correspondence or by distribution of bulletins or other printed matter. Over 165,454 miles of travel were entailed to render this service. The work includes a special live stock and diversification campaign attended by 36,470 people; 61 summer farmers' meetings attended by 12,617 people; 1036 corn club and farm demonstration meetings with an attendance of 101,800 people; 29 girls' canning club meetings with an attendance of 3,765 people; 14 teachers' institutes attended by 1,090 teachers; 45 miscellaneous meetings attended by 7,405 people; 291 pig club meetings attended by 16,233 people; 48 poultry club meetings attended by 4,719 people; 131 hog cholera meetings attended by 14,006 people; and 55 live stock meetings attended by 18,732 people. In addition, about 25,000 people viewed the educational exhibits of the College at the State Fair at Macon, and over 600 people attended the meetings of the various state organizations held at the College.

County agents are now employed in eighty-two counties within the state. During the past year they traveled in their own conveyances 233,919 miles, making 33,696 visits to field crop demonstrations, 14,744 visits to coöperative farms, 18,992 visits to miscellaneous farms, 1,680 visits to club members. They distributed 159,696 bulletins and circulars to farmers.

There are employed fifty-one county agents in home economics who traveled 48,164 miles visiting 6,172 farm homes and 1,376 club members. The county agents in agriculture and home economics made 3,900 visits to rural schools reaching 48,675 pupils and teachers.

Another feature emphasized by the extension department is the organization of boys' and girls' industrial clubs. The boys are encouraged to grow corn and raise pigs under specific rules and regulations laid down by the College, and the girls to organize canning and poultry clubs and to take a greater interest in cooking and sewing. In this work the extension division has had the sympathetic coöperation of the great majority of the county school commissioners, the Farmers' Union, the state department of agriculture, business organizations and a number of congressmen. Liberal prizes have been offered by a number of organizations and individuals. Through the organization of these clubs the attention of the boys and girls is being directed to a more thorough appreciation of the

possibilities of the soil, the need of using fertilizers and acquiring a knowledge of plant and animal life. In other words, agricultural instruction of a fundamental character is being introduced into the schools of the state and the fact that the boys have often been able to produce 100 bushels of corn per acre, has demonstrated the economic value of work of this character.

The sudden appearance and extensive infestation of the boll-weevil in a large part of Georgia during 1915 created an emergency that had not existed previously. Since the cotton acreage would have to be cut materially by planting time in 1916, a special live stock and diversification campaign was organized. In order to make the lessons plain to the largest number of people in the shortest time, a large amount of equipment was provided for in this campaign. It consisted of a carload of live stock, representing such breeds as Percheron horses, Shorthorn, Hereford, Jersey, and Holstein cattle, Duroc-Jersey, Berkshire and Tamworth hogs. In addition to this a carload of feed crops was included. This showed samples of annual and permanent pastures growing in boxes. Show cases were filled with a variety of grain and forage crops, results of different methods of seed selection, soil preparation, cultivation and fertilization in the test plats at the College.

The campaign lasted about 100 days. Two stops were made each day. The live stock was taken to the court house square or some central place in town. Charts and other apparatus were used for illustrating lectures. It is believed that much good is being accomplished by this campaign, which has been attended up to March 1 by 36,470 farmers.

It is believed that one of the most efficient ways by which the farmer can be served is through the organization and promotion of extension schools. The people of each community put up a minimum guarantee of paid-up, registered students before the school is given. These schools are of four days duration and are conducted in a thoroughly practical manner. Among the subjects discussed are the mixing and application of fertilizers, soils and soil cultivation, tillage and tillage implements, the selection and improvement of seed corn and cotton, diseases of live stock, dairying, poultry husbandry, fruit and truck problems, spraying and orchard management and the feeding and care of live stock. A car of live stock and a car load of exhibits and equipment are carried from place to place. The exhibits, charts, models, scientific apparatus and other material help to present the subjects in a graphic and practical manner, so practical indeed that many farmers who have attended the schools found it feasible to put the suggestions made by the instructors into practice. The car of live stock helps wonderfully in

acquainting the farmers with the different breeds and does a vast amount of good in giving the farmers a desire for better farm animals. The value of a system of extension teaching of this character can never be accurately estimated, but those who have seen the marvelous improvement in farm practice which has followed in the wake of limited effort in this direction realize fully what a systematic extension bureau may accomplish in stimulating an interest in better methods of farming.

Speakers are sent from the College to address farmers' gatherings or to discuss subjects of special interest to a given community. The officers of the College are working in coöperation with the county school commissioners, and lecturers are sent to teachers' institutes for the purpose of discussing ways and means by which instruction in agriculture in the common schools are provided by law, may be inaugurated. No service can be rendered the people of the state at this time more important than that of fostering the teaching of the underlying principles of agriculture in the public schools.

Another feature of extension work which the College is fostering is correspondence with farmers. Thousands of letters are annually answered, giving definite information relative to fertilizers, soils, crops, care and management of live stock, orchards and gardens. Every farmer in the state is invited to take advantage of the free information afforded by correspondence. In this way at the cost of a two-cent stamp, any individual may obtain information worth a great deal of money to him.

The College stands ready to assist every organization and individual entitled to its service.

SUMMER FARMERS' MEETINGS.

Sixty-one summer farmers' meetings were held during the past year at the following places: Valdosta, Quitman, Moultrie, Cairo, Bainbridge, Hilton, Georgetown, Fort Gaines, Pachitla, Dawson, Omaha, Albany, Leesburg, Cordele, Montezuma, Columbus, LeGrange, Newnan, Carrollton, Buchanan, Dallas, Powder Springs, Fife, Indian Springs, Decatur, Bishop, Alpharetta, Jasper, Calhoun, LaFayette, Cohutta, Berry School, Kingsland, Brunswick, Darien, Screven, Blackshear, Alma, Willacoochee, Hazelhurst, McRae, Ohoopee, Reidsville, Dublin, Cochran, Rochelle, Ashburn, Macon, Newington, St. Clair, Sandersville, Cooperville, Eatonton, Warrenton, Washington, Union Point, Danielsville, Lavonia, Toccoa, Dawsonville.

Institutes were offered to the remaining counties but for various reasons satisfactory arrangements could not be made for the meetings.

From one to three speakers were sent to the following places where either farmers' meetings or educational rallies were held:

Lawrenceville, Cannon, Maysville, Conyers, Ashland, Savannah, Hartwell, Waycross, Macon, Americus, Clarkesville, Martin, Eastonollee, Milledgeville, Jefferson, Madison, LaFayette, Moultrie, Eatonton, Rabun Gap, Toccoa, Dalton, Columbus, Barnesville, Danielsville, Douglas, Thomasville, Monticello, Blackshear, Tifton, Moultrie, Pelham, Albany, Blakely, Dawson, Richland, Cordele, Waycross, Thomson, Warrenton, Demorest.

ANNUAL MEETINGS OF FARMERS' ORGANIZATIONS.

The Georgia Dairy and Live Stock Association, the Georgia State Horticultural Society, and the Georgia Breeders' Association hold their annual meetings at the College in January. An attempt is made to reach and serve the interests of all classes of citizens engaged in agriculture. The attendance continues to grow. Since those engaged in horticulture or dairying are often interested in both as well as general farming, the joint meeting of the three associations present many advantages to the members and saves both time and money. By meeting at the College, these organizations are afforded an opportunity to study the progress made in agricultural science during the year and to confer with experts. The student body is greatly benefited by the opportunity afforded for personal contact with practical men who are making a success of the work in which they are engaged. Thus several important purposes are served through the arrangement of a joint conference of the organizations chiefly concerned in promoting the welfare of Georgia farmers.

The advisability of holding such a general conference is shown by the fact that the fertility of our lands is decreasing, the depredations of insect pests and plant diseases are becoming greater each year, and the purchase and use of fertilizers more abundant. How shall the farmer obtain the needed information with reference to these matters save through some such clearing house as the State College of Agriculture?

Education measures the success and progress of a nation. We have neglected agricultural education in America because of our marvelous natural resources. But nature has rebelled, and now we must inaugurate crop rotations and give greater attention to the development of live stock.

CO-OPERATION.

Under the Smith-Lever bill the College of Agriculture and the United States Bureau of Agriculture enter into an agreement whereby the College becomes the directing head for th development within the state of enterprises comtemplated by the bill. To this end coöperation with the States Relations Service of the United

States Department of Agriculture is maintained. Cordial coöperation is also maintained between the College and various bureaus of the United States Department of Agriculture in carrying on club work among the boys and girls, field work in dairying, beef production, educational work in hog cholera serum, soil surveys, farm management, and marketing. Workers in these various lines belong to the College staff and conform to plans and policies outlined by the institution for the development of the agriculture of the state. Effective coöperation with the State Superintendent of Public Instruction and through him with county school superintendents and individual teachers in organizing and maintaining the boys' and girls' clubs, is obtained.

REGISTER OF STUDENTS, 1915-16

Freshman Class.

Abbott, Howard Williams---Athens
Adams, Gilbert Allen---Washington.
Allen, Rufus David---Pavo.
Amis, William Dean---Athens.
Archer, Hartwell Dewey---Sparta.
Barfield, Kenneth Alexander---Sunny Side.
Bennett, F. W.---Jefferson.
Bend, William Isidor---Brooklyn, N. Y.
Biggers, William Pease---Columbus.
Bleckley, Barnett William---Clarkesville.
Brook, Porter Crowl---Bowdon.
Burke, John Martin, Jr.---Milledgeville.
Burnett, Earl Stanley---Ninety-Six, S. C.
Byles, Wilson Wyatt---Valdosta.
Cleckler, John Seaborn---Palmetto.
Cocke, Emory Logan---Atlanta.
Cook, Robert Word---Fairburn.
Countryman, Perry Kirk---Smithville.
Cown, John Almand---Loganville.
Crump, Joseph Herschel---Carnesville.
Davis, Nathaniel Biggers, Jr.---Athens.
Earnest, Joseph Hammond---Bowdon.
Elrod, Julius Mitchell---Jefferson.
Epstein, Michael---New York, N. Y.
Ethridge, John---Athens.
Floyd, Dagma Leak---Plainville.
Garrett, Fred Charles---Columbus.
Hadley, Evan Worthe---Thomasville.

Head, Samuel Judson---------Tunnel Hill.
Hill, Roger Minot---------Athens.
Hodgson, Frederick Cruse---------Athens.
Hodgson, George Tyndall, Jr.---------Athens.
Hodgson, Harrall Bishop---------Athens.
Hodgson, Prince Allen---------Athens.
Hodgson, William Albon---------Athens.
Hutchins, Joshua Cornelius, Jr.---------Athens.
Ingram, Charles Benton---------Barney.
Kay, Toombs Hodges---------Hartwell.
Kelley, James Bartlett---------Cordele.
Landon, Edward Carter Braxton---------Hampton, Va.
Levie, John Adair---------Montezuma.
Linderman, Dumas Earl---------Demorest.
Lokey, Glynn Anthony---------Hatchers Station.
Martin, Escott---------Athens.
Moore, Joe Hewell---------Carlton.
McLaws, Uldrick Huguenin, Jr.---------Savannah.
Newman, James Boykin---------McDonough.
Owens, William Gladstone---------Canon.
Palfrey, Frank Upson---------San Antonio, Texas.
Park, Edward Douglas---------Athens.
Parks, Coy Capers---------Hartwell.
Phillips, Chas. Thomas---------Griffin.
Plaster, James Wilson---------Atlanta.
Polhill, DeVaughn---------Hawkinsville.
Rambo, Samuel Stanley---------Tallapoosa.
Rigdon, John---------Tifton.
Rountree, Cecil Anderson---------Swainsboro.
Russell, Clifford Payne---------Rome.
Rutland, John Thomas, Jr.---------LaGrange.
Shackelford, Charles Mercer---------Albany.
Shelley, C. C.---------Pavo.
Smisson, Louis---------Ft. Valley.
Spence, Samuel Bennet---------Camilla.
Sprowl, George Wayne---------Savannah.
Stewart, Jeff Davis---------Dry Branch.
Thornton, Alfred Melba---------Fayettesville.
Turner, Joseph McDuff---------Juno.
Walton, Ralph Outlaw---------Hamilton.
Weatherly, Charles Nance, Jr.---------Athens.
Welch, Alva Curtis---------Thomasville.
Wellborn, Ernest Evans---------Atlanta.
Wellborn, Weyman Pierce---------Redan.

Whitaker, John Luther----------Harlem.
Whitaker, Lee Glanton----------Harlem.
White, Steve Clay----------Marietta.
Wright, Warren Candler----------Cairo.
Williams, John Edward----------Athens.
Woodard, Otis----------Dexter.

Sophomore Class.

Bedinger, Robert Daniel----------Atlanta.
Benford, Jesse James----------Bowdon.
Bexley, James Milliard----------Moreland.
Bussey, Arthur Stewart----------Waverly Hall.
Cabaniss, Emmet Overton----------Maxeys.
Camp, Jay William----------Douglasville.
Clegg, Wyatt Arnton----------Tifton.
Craig, Samuel, Jr.----------Lawrenceville.
Dodd, Glover Frank----------Kingston.
Dortch, Robert Leake----------Kerrs, Ark.
Ethridge, Robert Loy----------Auburn.
Everett, Taylor Lamar----------Bullards.
Gilmore, John Duggan----------Warthen.
Harris, Ray Carter----------Wrens.
Hopper, Lehman Edgar----------Rabun Gap.
Howell, Moses Elijah----------Canton.
Lee, Edward Morgan ----------Warrenton.
Maddux, Jarrel Oliver----------Culloden.
Marshburn, N. E., Jr.----------Stone Mountain.
Mobley, Charles Watson----------Athens.
McLemore, Carr ----------Mt. Vernon.
McRee, Joseph Leonard----------Watkinsville.
Neville, Walter Edward----------Rabun Gap.
Odum, James Edward----------Covington.
Petree, Russell Rano----------Powder Springs.
Plemmons, John Gordon----------Ellijay.
Powers, Thomas Stallings----------Newnan.
Putney, William ----------Plainville.
Scheer, George Moses----------Atlanta.
Settle, David Paschal----------Jackson.
Skinner, Louis Irvin----------Augusta.
Sorrells, Judge Clifford----------Monroe.
Stevens, John Law----------Valdosta.
Wheeler, Collerson Wells----------Mayfield.
Williams, Britain Walton----------Hamilton.
Young, Daniel Kelly----------Ty-Ty.

Junior Class.

Alexander, Emory DeWitt---Bessemer, Ala.
Andrews, Hugh Ector---Milledgeville.
Braxton, Elliott Muse---Newport News, Va.
Brown, Herman Judson---Elberton.
Brown, Walter Scott---Robertstown.
Coffee, John Tennith---Eastman.
David, Frank Columbus---Columbus.
Davidson, Francis Florence---Shady Dale.
Drexel, Eugene Paul---Tifton.
Garner, Charles Gordon---Granite Hill.
Gregory, Harry---Constantinople, Turkey.
Hall, Orville Duane---Carnesville.
Hodges, Kenneth Bryant---Albany.
Jones, William Clyde---Mansfield.
Kemp, George Guy---Marietta.
Kemp, Hoyle Newton---Powder Springs.
Koch, Charles Augustus, Jr.---West New York, N. Y.
MacIntyre, William Fraser---Thomasville.
Newton, John Thompson---LaGrange.
Saye, George Paul---Tate.
Sealy, James Robert---Edison.
Smith, Lafayette Richmond---Clayton.
Still, Dennis David---Loganville.
Upshaw, Daniel Hess---Monroe.
Watson, Oscar David---Loganville.
Wingate, Harry Lynwood---Camilla.

Senior Class.

Barlow, William Wallace---Cochran.
Bassett, Noble Paul---Ft. Valley.
Bassett, Ralphiell Phillips---Ft. Valley.
Brown, Harry Lowrance---Mountain City.
Bush, Newton Gale---Barnesville.
Collins, Morris William Hallowell---Atlanta.
Collins, William Olin---Douglasville.
Dennis, Joseph Littleton---Atlanta.
Frye, Henry Lee---Clarkesville.
Harvey, Harlow Williamson---Athens.
Hasty, William Dozier---Chickamauga.
Hill, Pope Russell---Toccoa.
Hillis, William Doughty---Girard.
Lanier, Fleetwood---Athens.
Maddux, Henry Towns---Culloden.
Nicholson, John Walter---Athens.

Purcell, Jones.....Lavonia.
Purdom, John M. Jr.,.....Blackshear.
Roderick, Lee M.....Athens.
Sorrells, William Holman.....Athens.
Veatch, Curry Lafayette.....Trion.
Wilder, Cecil Norton.....Pelham.

Graduate.

Keyser, Clarence Naaman.....Germantown, Pa.
Little, Bird.....Athens.
McConnell, Bright.....Commerce.
Riley, John Enoch.....Thomson.

1 Year Class.

Bowden, Robert Hollingsworth.....McDonough.
Burgess, George Madison.....Ashburn.
Clark, William Wallace.....Augusta.
Doster, George Reid.....Rochelle.
Downs, Alva Crawford.....Watkinsville.
Dunaway, Jewel Luther.....Rome.
Gibbs, Dozier Farriss.....Grovetown.
Hall, Burl Freeman.....Chickamauga.
High, Enoch.....Summerville.
Jones, John Samuel.....Summerville.
Jones, Walter Elmore.....Manassas.
Knox, Crawford Lewis.....Duluth.
Long, Walter Solomon.....Rome.
Miller, Charles Thomas.....Leo.
Miller, John Taylor.....Maysville.
Skinner, John Seaborn.....Martinez.
Smith, Young Hall.....Luthersville.
Stewart, William Allan.....Atlanta.
Tucker, David DeJarnette.....Williamston, S. C.
Walker, Charles Oscar.....Waycross.
Whelchel, William Kelous.....Cordele.

Special.

Bowen, James Lee.....Tifton.
Durkee, John Payne.....Griffin.
Ellis, James Branch.....Dawson.
Keener, Rufus Lafayette.....Rabun Gap.
King, Henry Grady.....Roopville.
Roberts, Ben Hill.....Valdosta.
Roesel, Theodore Frederick, Jr.....Augusta.
Treanor, Richard Taylor.....Athens.
White, Duncan Murchison.....Augusta.

SUMMER COTTON GRADING COURSE.

Akins, K. E.---Blairsville, Route 2.
Ashley, Marshall---Ocilla.
Bishop, C. H.---Ashburn.
Blackman, N. R.---Pavo.
Blumberg, Milton A.---Birmingham, Ala.
Bolton, W. D.---Statham.
Bowen, H. L.---Bremen.
Clarke, J. B.---Atlanta, 391 Peachtree.
Conoly, L. L.---Sylvester, Route 3.
Culpepper, W. C.---Greenville.
Dickerson, Carl---Ocilla.
Dootson, Wm.---Athens.
Dowd, O. N.---Poulan.
Farmer, Gordon---Nicholls.
Ferguson, W. F.---DeSoto.
Griffin, R. W.---Douglas.
Harper, Sam---Poulan.
Henderson, E. C.---Ocilla.
Hodges, D. H.---Logansville.
Holloway, A. V.---Graymont, Route 1.
Jones, Carter---Cumming, Route 9.
Jones, R. S.---Resaca, Route 1.
Jowers, Pleasant L.---Wray, Route 1.
Joyce, C. S.---Sugar Valley, Route 1.
Kellog, T. W.---Jasper.
Kessler, J. B.---Cochran.
Lanier, W. S.---Statham.
Lott, J. M.---Douglas.
Mercer, J. H.---Arlington.
Moore, J. C.---Douglas.
McCrany, G. F.---Willacoochee.
McGirt, Augustus---Poulan.
McGirt, Dan---Sylvester.
McKenzie, L. F.---Waynesboro.
Olliff, O. B.---Graymont, Route 1.
Paulk, J. W.---Ocilla.
Posey, J. J.---Oakfield.
Sané, C. V.---Baroda State, India.
Sherrill, Clifton---Ball Ground, Route 2.
Spence, O. L.---Carrollton.
Wall, J. H.---Statham.
Warren, Chas. Ed.---White.
Whitley, H. L.---Lithonia.

Willingham, R. C.---Statham.
Womack, A. B.---Statesboro.
Woodall, J. G.---Milner.
Wright, T. V.---Cordele, Route 7.

FARMERS' SHORT COURSE.

Ball, Fred Willard---Fitzgerald.
Barnett, Edw. A.---Washington.
Bohanan, Raymond---Lithonia, Route 3.
Booker, L. Harold---Washington, Route 1.
Bozeman, Ozwell A.---Shangler.
Burke, John W.---Sharon.
Carpenter, Adelbert---Cave Springs.
Carwile, John R.---Atlanta, 258 Stewart Ave.
Chamlee, Alex S.---Bartow, Route 3.
Coleman, Frank ---Devereux.
Collier, Vines Lester---Meansville.
Cook, Roy---Fairburn, Route 2.
Darden, T. Seals---Sharon.
Davis, John---Covena, Route 1.
Davis, Wm. Watson---Robinson, Route 1.
Denham, Frank T.---Eatonton.
Dennard, Chas. P.---Pineview, R. F. D.
Downs, Wm. W.---Watkinsville, Route 2.
Driskell, Wm. Walter---Sparta.
Dunn, Thos. Eugene---Cuthbert.
Felton, Geo. A.---Cusseta, Route 3.
Fugitt, Don C.---Albany, Route A.
Gammage, Maceo H.---Pineview, Route 1.
Harlan, Carey L.---Alexander City, Ala.
Harris, Chester A.---Atlanta, 258 Stewart Ave.
Harris, John E.---Sharon.
Hatch, James Milo---Augusta, 2409 Walton Way.
Harvey, Leon---Pineview, Route 1.
Hill, T. B.---Athens.
Hodges, James E.---Halcyondale, Route 2.
Hoff, John W.---Atlanta, 258 Stewart Ave.
Howard, Redding H.---Kathleen, Route 1.
Hutcheson, Thos. A.---Buchanan, Route 3.
Hutcheson, Hubert---Buchanan, Route 3.
Jelks, Hendley F.---Sylvester, Route 4.
Jones, John S.---Cornelia.
Jones, Edwin J.---Madison.
Kemper, Wm. G.---Fort Valley, Route 1.
Kirkland, Dan---Denton, Route 1.

Leard, Lecel ---------- Bowersville.
Leard, Lizzie ---------- Bowersville.
Leverett, Hulm P. ---------- Monticello, Route 3.
Little, Hoyt B. ---------- Ashland, Route 2.
Marshall, Barton E. ---------- Washington, Route 3.
MacAllister, Archie ---------- Atlanta, 258 Stewart Ave.
McDougald, Walter E. ---------- Statesboro.
McElhenry, Blanton Edward ---------- Gladesville.
Phillips, Thos. J. ---------- Longansville, Route 1.
Pittman, James Thomas ---------- Thomasville.
Price, Wm. Pinkney ---------- Farmington.
Rouse, Phillip ---------- Meigs.
Salter, Jas. E. ---------- Sandersville.
Sessoms, Ralph B. ---------- Waycross.
Sewell, Paul ---------- Cave Springs.
Sims, John L. ---------- Cave Springs, Route 1.
Simmons, Capers M. ---------- Rome.
Smith, Julius J. ---------- Elberton, Route 11.
Steed, Lewyn H. ---------- Washington, Route 1.
Tate, Edmund Brewer, Jr. ---------- Elberton, Route 1.
Taylor, Maury G. ---------- Albany, Route A.
Thompson, Jas. Wm. ---------- Buchanan.
Thrasher, Barton E. Jr. ---------- Watkinsville, Route 1.
Treadwell, Daniel M. ---------- Swainesboro.
Turner, Donald Fleming ---------- Rome, Route 1.
Veale, Joseph M. ---------- Watkinsville, R. F. D.
Warthen, Wm. B. ---------- Davisboro.
Williamson, Wm. D. ---------- Commerce, Route 13.
Worsham, Hubert L. ---------- Culloden.

RANGER SCHOOL.

Gaddis, Mildred T. ---------- Suches.
Robinson, Guy H. ---------- Boston, Mass.

COLLEGIATE SUMMER COURSE.

Hillis, William Doughty ---------- Girard.
Maddux, Henry Towns ---------- Culloden.
Nicholson, John Walter ---------- Athens.
Roderick, Lee M. ---------- Athens.
Still, Dennis David ---------- Logansville.
Upshaw, Daniel Hess ---------- Monroe.

COUNTY AGENTS' COURSE.

Arnold, J. W. Jr. ---------- Darien.
Asbury, T. L. ---------- Crawfordville.
Baker, Eugene ---------- Monroe.

Ball, Fred.....Hinesville.
Blackwell, J. H.....Newnan.
Boggan, W. M.....Hamilton.
Boland, M. G.....Cochran.
Boyette, W. J.....Morris Station.
Bradford, Wm.....Cedartown.
Bryant, C. A.....Royston.
Burdette, J. Luke.....Washington.
Cassels, G. T.....Fort Gaines.
Chastain, T. G.....Atlanta, Chamber of Commerce.
Childs, W. S.....Omaha.
Collier, V. L.....Moultrie.
Cown, S. M.....Fairburn.
Cox, C. H.....Jasper.
Cromartie, H. L.....Lyons.
Culpepper, C. B.....Vienna.
Cunningham, G. V.....Tifton.
Davis, L. C.....LaGrange.
Davis, C. B.....Rochelle.
Dillard, E. C.....Hartwell.
Dowling, S. L.....Valdosta.
Driskell, W. W.....Sparta.
Dunn, J. L.....Brunswick.
Eunice, Geo. B.....Douglas.
Fears, Grady F.....Calhoun.
Foster, J. H.....Rome.
Garrison, F. D.....Clarkesville.
Harp, H. R.....Fayettesville.
Harper, O. T.....Reidsville.
Hart, J. F. Jr.....Union Point.
Head, B. J.....Alma.
Howard, R. H.....Perry.
Hunter, R. S.....Decatur, R. F. D.
Hutcheson, Thos.....Buchanan.
Jackson, E. T.....Carrollton.
James, C. M.....Columbus.
Johnson, J. A.....Cordele.
Long, W. S.....Danielsville.
Martin, C. E.....Hilton.
Mathews, J. T.....McRae.
McElheney, B. L.....Monticello.
Middlebrooks, W. G.....Macon.
Oliver, J. G.....Americus.
Parker, T. L.....Alpharetta.
Parrish, H. H.....Albany.

Pedrick, Scott ---------- Quitman.
Pittman, J. T. ---------- Bainbridge.
Pitts, D. J. ---------- Bowman.
Proctor, L. G. ---------- Thomasville.
Rice, G. E. ---------- Jackson.
Rogers, Roy ---------- Baxley.
Rouse, Phillip ---------- Meigs.
Schemp, G. C. ---------- Camilla.
Shedd, J. P. ---------- Jesup.
Sherard, Sam H. ---------- Sandersville.
Shirley, C. V. ---------- Warrenton.
Smith, W. R. ---------- Woodbine.
Stratford, R. A. ---------- Barnesville.
Treadwell, D. M. ---------- Swainsboro.
Turk, J. L. ---------- Reynolds.
Turner, J. M. ---------- Dawsonville.
Tyre, J. B. ---------- Dublin.
Veatch, A. C. ---------- Trion.
Ward, P. H. ---------- Cairo.
Watson, L. S. ---------- Tifton.
Whatley, W. F. ---------- Statesboro.
Whelchel, W. F. ---------- Marietta.
Wiley, H. G. ---------- Toccoa.
Wiley, T. B. ---------- Blackshear.
Woodruff, J. G. ---------- Athens.
Worsham, H. L. ---------- Forsyth.
Yates, W. W. ---------- Dallas.
York, Gus ---------- Augusta, Route 2.

HOME ECONOMICS COURSE.

Allman, Mrs. Pearl M. ---------- Toccoa.
Andrews, Mrs. Edith M. ---------- Monroe.
Atwell, Mrs. T. B. ---------- Waycross.
Bailey, Pauline ---------- Cedartown.
Bennett, Mrs. Annie ---------- Jesup.
Bethea, Mrs. A. L. ---------- Pitts.
Bethea, Miss Maggie ---------- Reidsville.
Blackwell, Mrs. Josie ---------- Swainesboro.
Bond, Mrs. E. G. ---------- Columbus.
Brooks, Ellen ---------- Americus.
Burton, Jessie ---------- Cartersville.
Butner, Mrs. Mary E. ---------- Jackson.
Cheatham, Mrs. Sadie H. ---------- Macon.
Clark, Mrs. Tassie O. ---------- Richland.
Colclough, Etta ---------- Blairsville.

Crowder, Mary E. ---------- Washington.
deLoache, Mrs. E. T. ---------- Millen.
Dickson, Lela M. ---------- Fayettesville.
Forrest, Lilla ---------- Boston.
Frankum, Caroline ---------- Martin.
Hyde, Mrs. Eura J. ---------- Newnan.
Johnson, Nola A. ---------- Douglas.
Johnson, Mrs. R. McCoy ---------- Cordele.
Lawton, Arrie M. ---------- Garnett, S. C.
Leard, Lizzie ---------- Hartwell.
Long, Rowena ---------- Tifton.
McGee, Eva ---------- Monroe.
Nelson, Mrs. Kate W. ---------- Oglethorpe.
Odum, Myrtle ---------- Statesboro.
Parker, Mrs. Frankie ---------- Baxley.
Rhodes, Nada L. ---------- Crawfordville.
Sale, Mary ---------- Danburg.
Sewell, Julia ---------- Decatur.
Stone, Mary Julia ---------- Tallapoosa.
Wheeler, Mrs. Mary B. ---------- McRae.
Wiley, Mrs. T. B. ---------- Blackshear.
Wood, Leta ---------- Vienna.

SUMMARY OF REGISTRATION.

M. S. in Agriculture	4
B. S. in Agriculture	157
B. S. Forestry	5
One-year Course	21
Special	9
Farmers' Short Course	68
Summer Cotton Grading Course	47
County Agents' Course	76
Home Economics Course	37
Ranger School	2
Collegiate Summer Course	6
	432
Counted twice	15
*Total Registration	417

*Decrease over 1914-1915 due to change in date of holding boys' and girls' short courses, from January to August. As there are 300 scholarships available for boys and girls the attendance will be nearly 200 in excess of 1914-1915.